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TEXTILE WORLD

...OVEMBER • 1944

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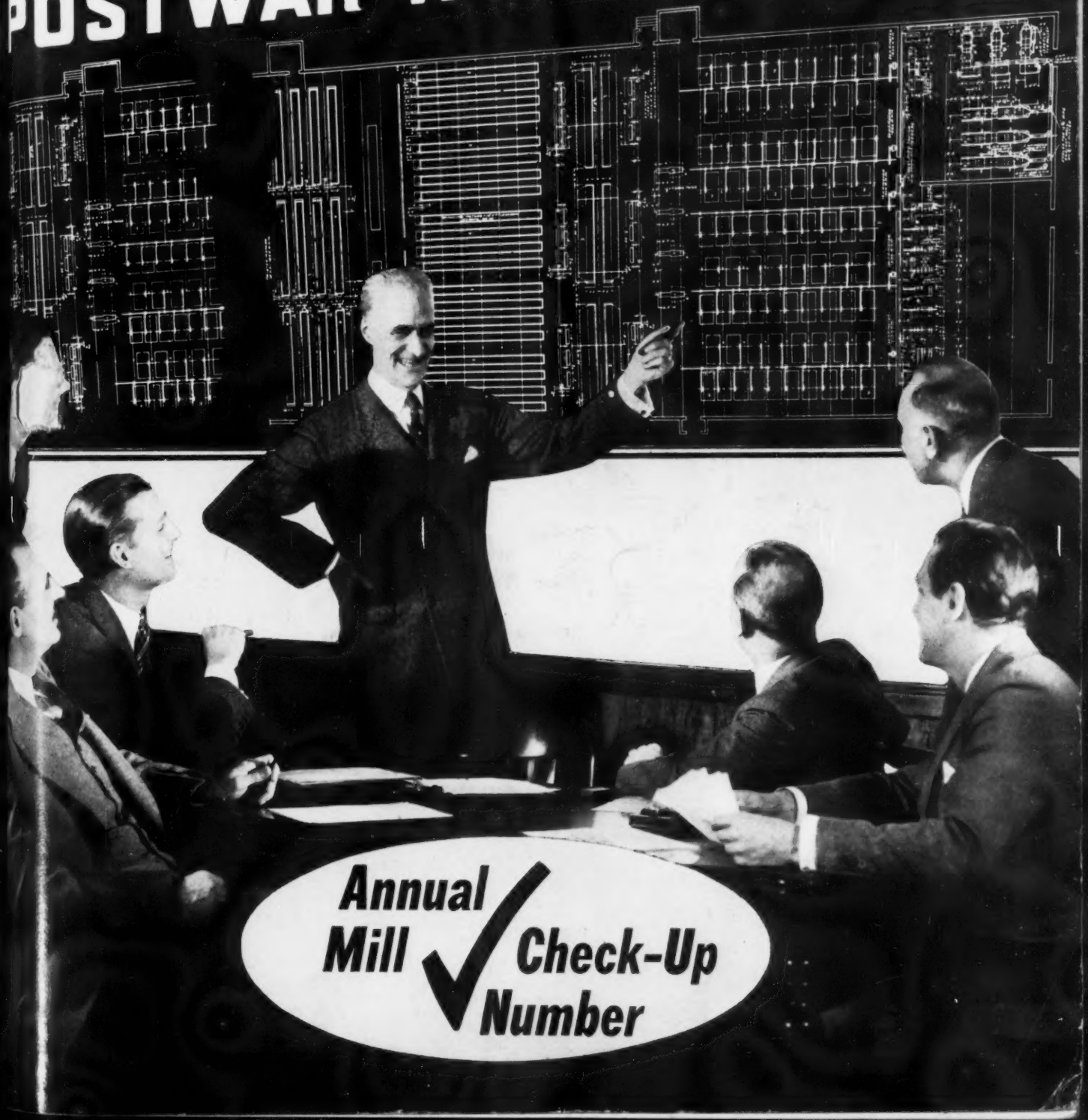
POSTWAR IMPROVEMENTS



Annual Mill Check-Up Number

Remember

when your business had a cash problem?

MAINTAIN FOR THE FUTURE YOUR *PRESENT* CONSERVATIVE CASH POSITION. IT WILL BENEFIT YOUR THINKING AS WELL AS YOUR STATEMENT.

You will think differently, better, more soundly, concerning your Company's future policies and plans if you *know* that your present cash position can be maintained . . . Someday your needs for cash for expansion in your business may be larger than you now visualize. Or competitive conditions could change to make your sales problems temporarily difficult . . . Our clients call our facilities the best and most economical kind of Cash-Reserve protection they know of. Much valuable experience from within our organization is available to you. . . . May we consult with you about your present or future plans?

COMMERCIAL FACTORS CORPORATION

Fred'k Vietor & Achelis, Inc. Established 1828
Schefer, Schramm & Vogel Established 1838
Peierls, Buhler & Co., Inc. Established 1893

TWO PARK AVENUE, NEW YORK

EUGENE G. LYNCH, 80 FEDERAL STREET, BOSTON, MASS.
T. HOLT HAYWOOD, WINSTON-SALEM, NORTH CAROLINA

THE CFC PLAN IS NOT LIKE ANY OTHER FACTORING SERVICE . . . THE DIFFERENCE IS IMPORTANT

TEXTILE WORLD. Vol. 94, No. 11, November, 1944. Published monthly by McGRAW-HILL PUBLISHING CO., INC. (Bragdon, Lord & Nagle Division). Publication Office, 99-129 North Broadway, Albany, N. Y. RETURN POSTAGE GUARANTEED. Editorial and Executive Offices, 330 West 42nd Street, New York, (18) N. Y. Allow at least ten days for change of address.
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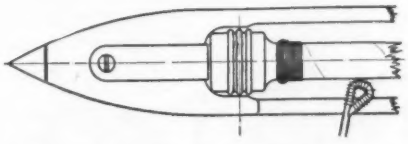
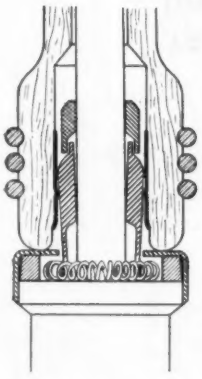
To Meet The Growing Demand For Feeler Goods

Aids To Weaving

Start With

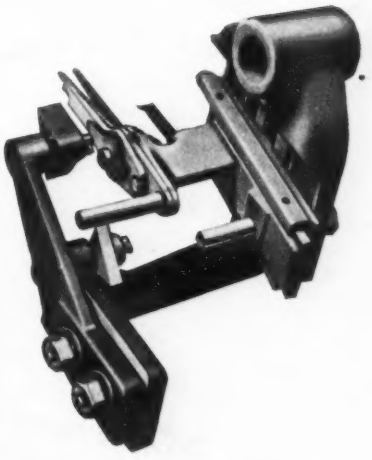


A Bunch Properly Made by Draper Bunch Builder



Stimpson Clutch and
Patent Bobbin Bushing
Insure
Even Yarn Packages
With Properly Placed Bunch

Sure Fire Feeler Action
With Minimum Waste



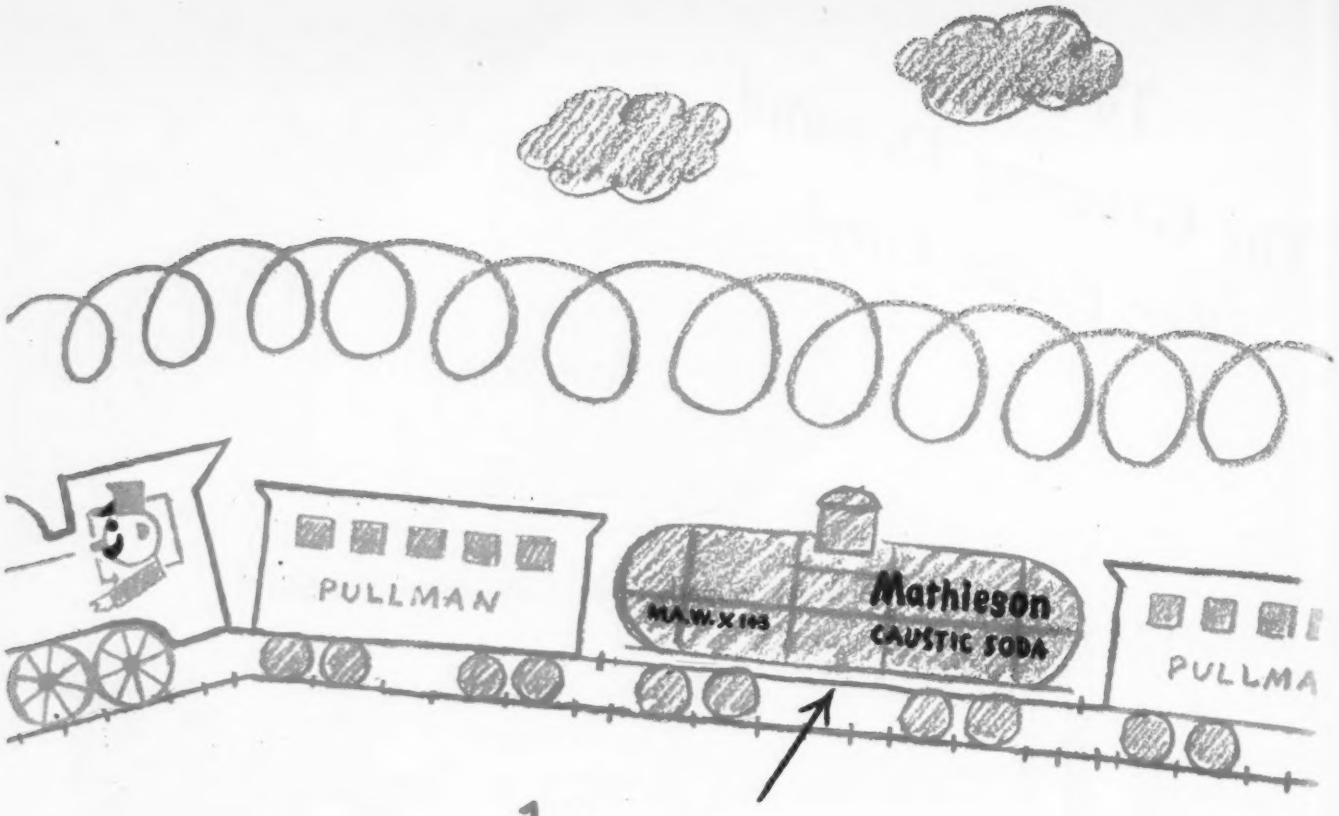
No Trailing Ends with
Stafford Thread Cutter

Properly Made Draper Bobbins
Complete the Story

Premium Priced Goods

Draper Corporation

Atlanta Hopedale Spartanburg



it hasn't happened yet-

NO, we haven't yet had to attempt passenger train service to meet delivery schedules for war-vital Mathieson Caustic Soda. The great Mathieson fleet of tank cars rides the rails with guns, tanks, airplane parts—definitely travels first-class.

And no Pullman car is more carefully groomed between trips than a Mathieson Liquid Caustic tank car. Each is minutely inspected and cleaned at our own car shops—checked to assure fast delivery of clean, pure caustic for the thousand-fold job it does to speed Victory. Yes—because of the grand job the railroads are doing to move war supplies and Mathieson's attention to important details—it's first-class transportation for a top-class product!

Mathieson
CHEMICALS

THE MATHIESON ALKALI WORKS (INC.) 60 EAST 42nd STREET, NEW YORK 17, N. Y.

CAUSTIC SODA..SODA ASH..BICARBONATE OF SODA..LIQUID CHLORINE..BLEACHING POWDER..H T H PRODUCTS..AMMONIA, ANHYDROUS & AQUA..FUSED ALKALI PRODUCTS..SYNTHETIC SALT CAKE..DRY ICE..CARBONIC GAS..SODIUM CHLORITE PRODUCTS..SODIUM METHYLATE

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TEXTILE WORLD

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Editorial

Disturbing to the NERVOUS SYSTEM

THE NERVOUS SYSTEM of modern man is subjected to many disturbing influences. One of these is the noise in factories. Another is worry over the task of making a factory pay a profit. It all depends on the job.

The article on noise reduction, by John Johnston, in the last issue of TEXTILE WORLD, calls to mind what might be called a song, or at least a close approximation of one, which was composed many years ago by a weaver at his work. For rhythm this fellow used the sounds of the complete cycle of a heavy loom, and for words he employed the simple expedient of placing as many letters as possible before two syllables which he adopted as standard. The result, which gives some indication of what a textile worker is up against, was about as follows:

"O the bashing, and the clashing, and the crashing, and the dashing, and the flashing, and the gashing, and the hashing, and the mashing, and the gnashing, and the slashing, and the smashing, and the thrashing of the loo-oom, of the loo-oom." Try it the next time you visit a heavy-goods weave shed.

Not being favored with industrial music coming to him over loudspeakers, this weaver found singing this song (and he says he could sing it at almost the top of his lungs without disturbing anyone else in the vibrating weave shed) rather soothing. Certainly he had no feeling that the competing noise of the loom was affecting him adversely, either physically or mentally; but he was young and his resistance was good, and he may not have been wise enough to realize that the two noises combined—that of the loom and his own—were, after all, wearing him down.

THE JOHNSTON ARTICLE reported recent tests which show definitely that noise reduction can lessen fatigue and increase worker efficiency; and it offered genuine encouragement toward ultimate attainment of those goals. Many mill men have stated the belief that the root of the trouble is in the design of the machines and have expressed the hope that the design can be corrected.

As we have already suggested, the disturbing influences which some people believe are producing a degradation of civilized man are not confined to the spinning, weaving, knitting, and other production departments of the mill. They are found also in the front office.

To take one interesting and very current example, consider the present mental state of the average underwear manufacturer and his attitude toward the Office of Price Administration. This manufacturer is confronted with the knowledge that, thanks to the Bankhead amendment, the vast quantities of lightweight underwear wanted by the armed services may have to be produced at a financial loss to himself and to his stockholders.

IF HE IS ACTIVE manager of the organization, he cannot overlook the fact that his original assignment was to make a profit for the enterprise. His mental view is confused by the fact that he is basically in sympathy with the purposes of the OPA and that, furthermore, he has made the acquaintance of several members of that organization and has reached the conclusion that they are earnestly and sincerely trying to do their best under exceedingly difficult circumstances.

But he sees justification for complaint; and he can say with assurance—as Roy A. Cheney, president of the Underwear Institute, did say in a letter to the OPA on Oct. 27—that, unless requisite relief measures are adopted, many military and essential civilian requirements will be jeopardized. Military officials have already expressed alarm over this matter. Furthermore, depleted capital, it has been pointed out, will handicap postwar reconversion and re-employment plans.

What may bother the manufacturer most is his realization that the OPA, just like the underwear industry, is faced by a manpower problem and that in the archives of the Office are many cost-data sheets which were prepared at a large expenditure of time and money by the industry and to which adequate study-time has never been devoted by qualified men.

In the absence of such study, OPA is forced to make many assumptions, most of which are bound to be inaccurate. One of these is that the adjustment provision under MPR 157 affords relief; but the complicated procedure by which adjustments are made under this provision, plus the uncertainty that actual relief will result, largely nullifies the measure. What the industry seems to need is an immediate adjustment in ceiling prices.

The two particular disturbing influences we have singled out to mention can be largely eliminated, and the effort should be made.

Edwin D. Fowle

THE MAN IN THE ~~IRON~~ Textile MASK

KNEE-DEEP in snow, this soldier stands lonely guard, his face well protected from the cutting, icy blasts of winter by a textile mask. This is still another of the thousands of ways textiles help keep our men in fighting trim.

Because of the constant demands of our armed forces, textile mills must keep producing a steady flow of goods. And to assure uninterrupted service from mill equipment, maintenance-minded operators today depend more than ever before on Texaco lubricants.

Texaco Stazon assures efficient lubrication with minimum spoilage of yarn or fabric due to oil stain. It stays on fast-moving cranks, etc., withstanding load shocks without splattering, creeping, dripping. Its high stability prevents excessive formation of non-lubricating deposits in bearings or enclosed housings.

For loom cams, use *Texaco 919 Lubricant-S.*

Texaco lubricants have proved so effective in service that they are definitely preferred in many fields, a few of which are listed at the right.

Texaco Lubrication Engineering Service is available to you through more than 2300 Texaco distributing points in the 48 States. The Texas Company, 135 East 42nd Street, New York 17, N. Y.

THEY PREFER TEXACO

★ More revenue airline miles in the U. S. are flown with Texaco than with any other brand.

★ More buses, more bus lines and more bus-miles are lubricated with Texaco than with any other brand.

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★ More Diesel horsepower on streamlined trains in the U. S. is lubricated with Texaco than with all other brands combined.

★ More locomotives and railroad cars in the U. S. are lubricated with Texaco than with any other brand.

TEXACO

TEXACO Lubricants

FOR THE TEXTILE INDUSTRY

TUNE IN THE TEXACO STAR THEATRE EVERY SUNDAY NIGHT—CBS ★ HELP WIN THE WAR BY RETURNING EMPTY DRUMS PROMPTLY

Now *G-E COOLING* keeps 'em rolling!

IN making rubber-coated wire, the rubber—after preliminary processing—is put through finishing rolls, which turn at different speeds . . . *working* the rubber rather than just pressing it.

Right here is where the hold-up took place. The rolls—even though water-cooled—became so warm that the rubber stuck to them. Every time this happened, the rubber had to be removed and the rolls allowed to cool.

To end this serious loss of time and output, G-E Refrigeration was called on. A thermostatically controlled cooling system now feeds water into the rolls at 45° to 50° F—keeps the water in the rolls constantly at the most efficient temperature—greatly reduces the time for working the rubber—prevents sticking and shut-downs.

Unusual war production applications by the score are being found for G-E Refrigeration and Air Conditioning Equipment. As a result, G-E engineers are building up a fund of practical knowledge that should be most helpful to you, no matter what your heat transfer problems may be . . . *now* or in the future.

General Electric Company, Air Conditioning and Commercial Refrigeration Divisions, Section 449, Bloomfield, New Jersey.

☆ BUY . . . and hold . . . WAR BONDS ☆

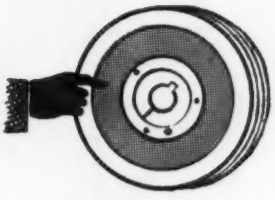
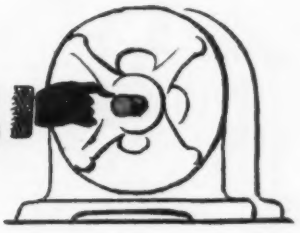
Industrial Refrigeration by

GENERAL ELECTRIC

Hear the General Electric Radio Programs: The "G-E ALL-GIRL ORCHESTRA," Sundays, 10 p.m., EWT, NBC . "THE WORLD TODAY" News, Every Weekday, 6:45 p.m., EWT, CBS

It doesn't take this

to get

this  off this 

Allis-Chalmers' new "Magic-Grip" — *fastest mounting and demounting sheave on the market* — is removed from shaft in just 3 easy steps . . . saving you time, trouble, money.

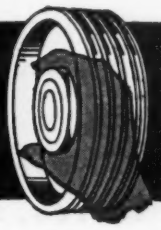
1 **Remove three capscrews** from bushing collar. A handy wrench — supplied with each sheave — is the only tool needed to remove Allis-Chalmers' new "Magic-Grip" from motor or machine shaft quickly and easily.

2 **Insert two capscrews** in tapped holes. As screws are turned, they become levers . . . automatically breaking tight grip of tapered split bushing on sheave and shaft. Entire unit is then ready for removal.

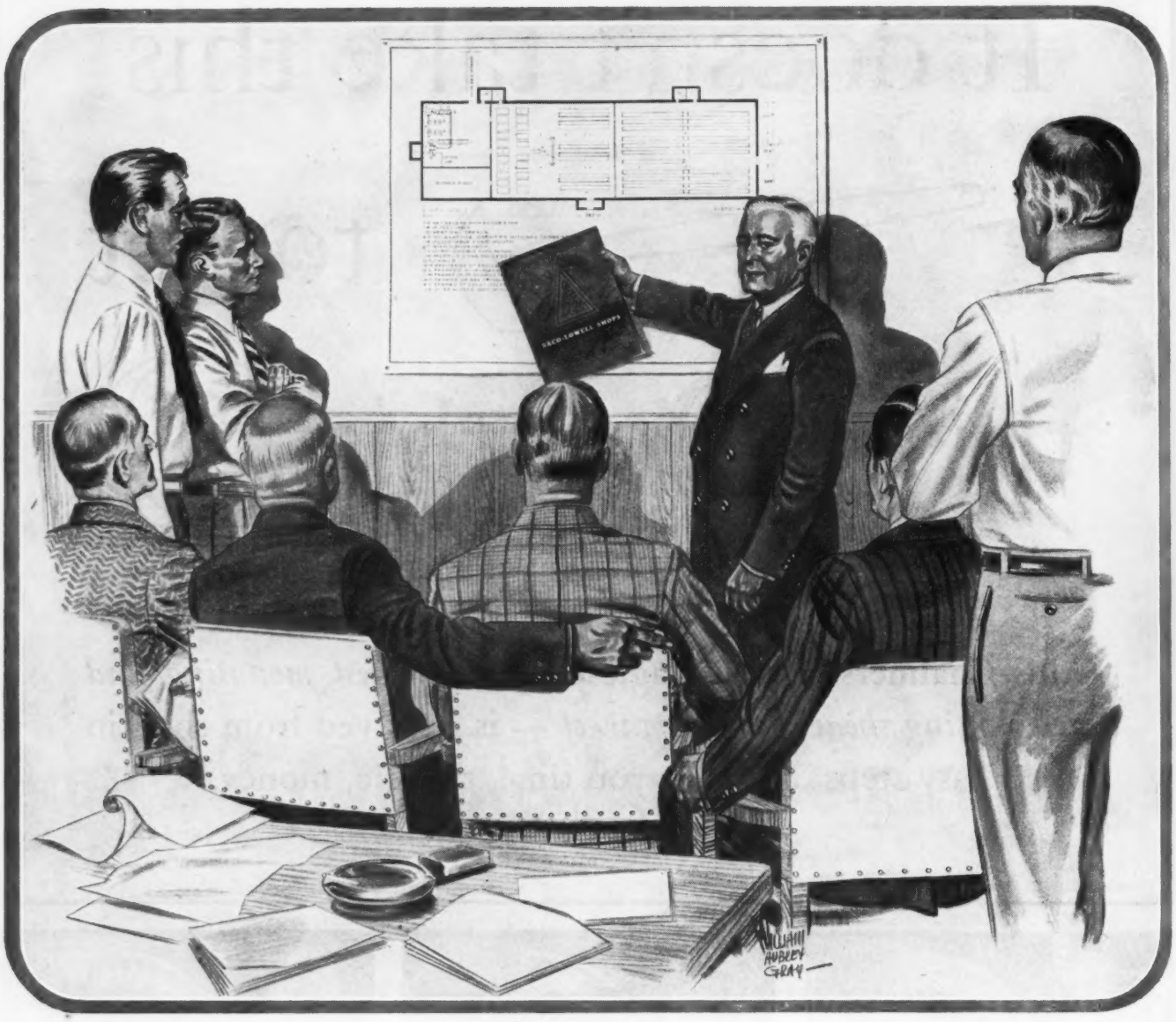
3 **Remove sheave from shaft.** Requires no mallet, no prying, no bulging muscles. You just slide the sheave off . . . smoothly, quickly. *It costs nothing extra!* Send for B6310. Allis-Chalmers, Milwaukee 1, Wis.

A 1758

Allis-Chalmers Texrope

"MAGIC-GRIP"  **SHEAVES**

"Gentlemen - we must Saco-Lowell-ize*



. . . in my judgment it is the shortest path to better operating conditions . . . and will secure our position in the competitive post-war markets! "

Such a decision is typical of those being made by leading executives in discussions and conferences with their planning boards and operating staffs. This decision "to Saco-Lowell-ize" is the result of careful studies based on facts developed by surveys and observations.

Right now we are nearing the post-war competitive period where production costs again are becoming of paramount importance. Processes requiring needless handling of materials . . . equipment which has been slow, wasteful and costly to operate and maintain must be replaced with more modern and efficient machinery and methods.

Saco-Lowell engineers are ready at this time to cooperate with your engineering staff in laying plans to Saco-Lowell-ize as the shortest path to better and more efficient post-war production.

*

To utilize floor space so as to achieve the ideal in continuity of production. 2. To coordinate all successive steps in processing. 3. To reduce waste, spoilage and useless transportation of stock. 4. To attain the greatest economy in maintenance and operating costs.

Saco-Lowell Shops

50 BATTERYMARCH STREET, BOSTON, MASSACHUSETTS ***Charlotte Greenville Atlanta***

UNRETOUCHED PHOTOGRAPH

TENDERS don't spend extra time picking up eyebrows between regular cleaning periods when your frames are running on Armstrong's Cork Cots. That's because Armstrong's Cork Cots have a high coefficient of friction. They carry waste back on the boards where it belongs. Eyebrowing is eliminated. And since there's no danger of waste dropping off or being nipped into the work, clearer picking is reduced to a minimum.

Elimination of eyebrows not only means fewer complaints from frame tenders, but it results also in more uniform yarn, stronger yarn, and reduced end breakage. Yet it is only one of the reasons why Armstrong's Cork Cots give you better running work and more poundage. These cots are extra resilient and quickly "come back" after being under pressure by top-roll laps or hard ends. They have no soft or hard spots to grip the yarn unevenly. And they maintain a true drafting surface, because cork compresses instead of flowing when under roll weighting.

Armstrong's Cork Cots retain all their exceptional spinning qualities throughout a long initial life. When they do show signs of wear, they can be rebuffed—made like new—three or four times for extended service. Each rebuffing costs as little as one-half cent per roll.

If you'd like to test Armstrong's Cork Cots in your own mill, see your Armstrong representative. Or, write Armstrong Cork Company, Textile Products Department, 8311 Arch St., Lancaster, Pa.

ARMSTRONG IS HEADQUARTERS FOR

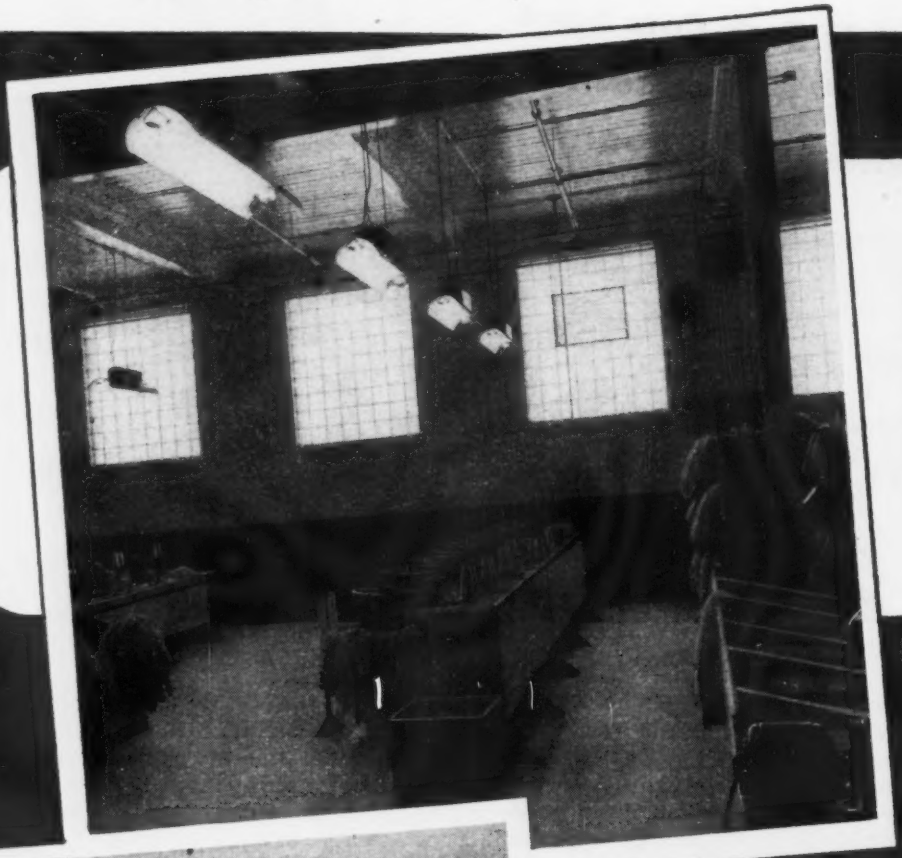
Roll Coverings, Long Draft Aprons, Roll Shop Equipment and Supplies, Loom Clutch Facings, Friction Let-off Strips, Brake and Clutch Inserts, Temple Rolls, Loom Bumpers, Preformed Cork Cones, Friction Drive Wheels, Spindle Washers, Winder Spindle Head Covers

BETTER RUNNING WORK — MORE POUNDAGE

ARMSTRONG'S CORK COTS

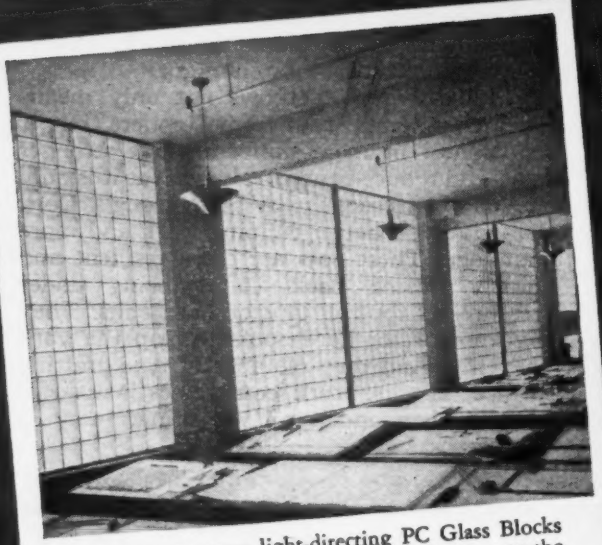
ACCOTEX COTS • ACCOTEX APRONS

Get all three:
Ample Light... More Comfort



In the Hosiery Mill the insulating value of PC Glass Blocks helps to maintain temperature and humidity levels, to prevent condensation in big, bright work rooms. They protect precision machines and goods in process from destructive dust. They cut down disturbing noises.

In the Laboratory PC Glass Blocks make the most of natural lighting from large openings. Translucent, but not transparent, they keep the researchers' secrets safe from prying eyes. The very character of PC Glass Blocks minimizes breakage hazards. They also are so rapidly and easily cleaned that maintenance costs are sharply reduced.



In the drafting room light-directing PC Glass Blocks diffuse an ample supply of clear daylight even to the remote ends of the tables. Yet there is no glare to bother the man who works next to the wall. In all sorts of plants all over the country PC Glass Blocks supply the sort of lighting needed to keep workers on their toes.

...Less Maintenance

WITH PC Glass Blocks

BEFORE

Many a gloomy, draughty plant, with rotted, cracked windows has been brought back to modern efficient condition when sash was replaced by PC Glass Blocks. Ample floods of diffused daylight are supplied by exterior openings—and transmitted by inner partitions—to all working areas. Flat surfaces are easily, quickly cleaned. Burdens on heating and air-conditioning systems are eased, maintenance costs are reduced, resulting in extreme economy.

AFTER

IN administration buildings as well as in manufacturing plants, PC Glass Blocks have replaced worn, warped, leaky sash and brought to owners and workers alike a new degree of satisfaction.

When you plan to modernize your plant, our technical staff will be glad to consult with you, to show you how and where you will profit by installing PC Glass Blocks. Meanwhile, send in the convenient coupon and get your *free* copy of our book, which has helped many plant managers to use PC Glass Blocks to the best advantage.

PITTSBURGH PC CORNING

GLASS BLOCKS

Distributed by

PITTSBURGH PLATE GLASS COMPANY

and by W. P. Fuller & Co. on the Pacific Coast

PITTSBURGH CORNING CORPORATION
GRANT BUILDING — PITTSBURGH 19, PA.

Pittsburgh Corning Corporation
2390-4 Grant Building, Pittsburgh 19, Pa.

Gentlemen:

Please send me the free illustrated book that tells how PC Glass Blocks have been used successfully in many industrial plants.

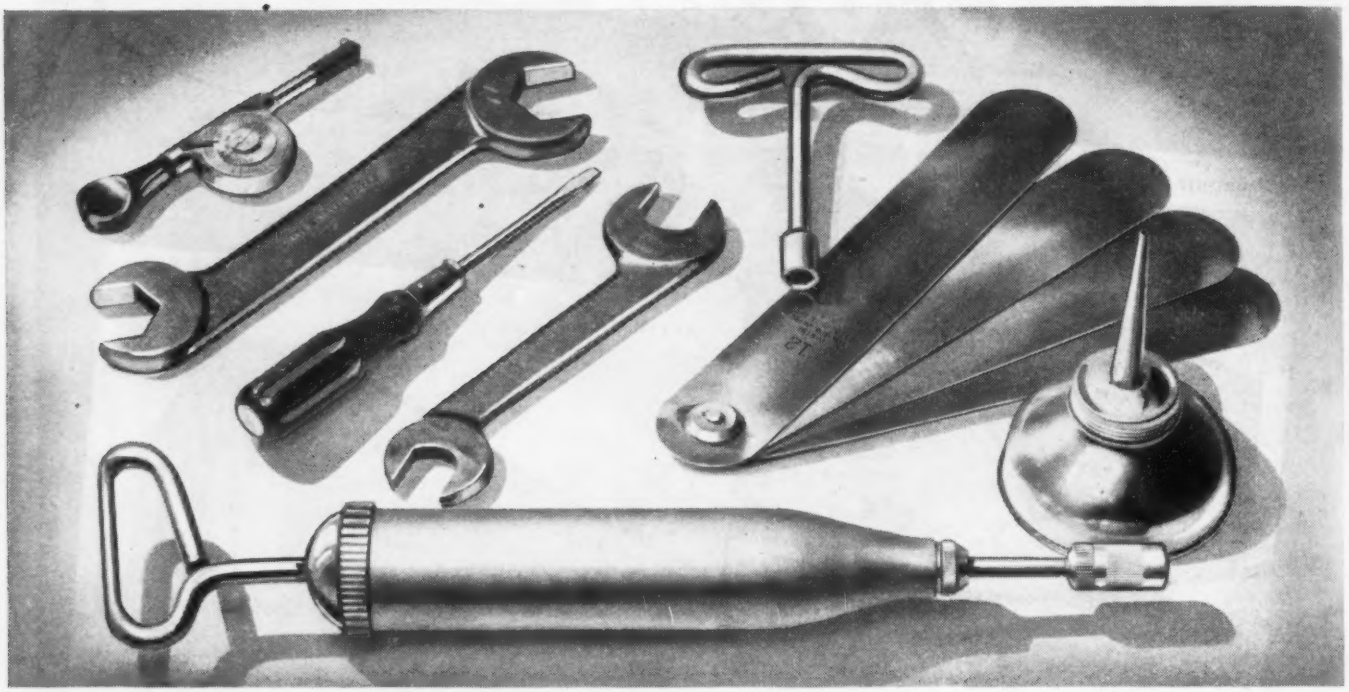
Name_____

Address_____

City_____ State_____

No THEY'RE NOT SECRET WEAPONS

But They'll Win Production Battles For You



And there are plenty of production battles yet to be won - - - - for still-needed war materials and, later, in the highly competitive field of peace-time textiles. Even though you have new machinery "on order" - - - - (chances are your competitors have also) - - - - it's no time to ease up on maintenance.

Textile machinery, like new cars, is not going to flood the market on V-day. The manufacturers of textile machinery, having diverted a large part of their facilities to the production of war materials, are faced with a substantial reconversion problem, and it's going to take time to gear up for peace just as it did for war.

This is why you can lose your production battle even *after* V-day by neglecting now to keep your old equipment in its best possible condition.

(1) Lubricate - - - - with the proper lubricant and on a definite schedule.

(2) Check your settings and adjustments frequently.

(3) Check your speeds. Get the most out of your machines. Don't let either belt slippage or excessive speed rob you of production.

Maintenance is vital - - - - to Victory - - - - and to Peace.

WHITIN MACHINE WORKS

WHITINSVILLE, MASSACHUSETTS, U. S. A.

CHARLOTTE, N. C. **ATLANTA, GA.**

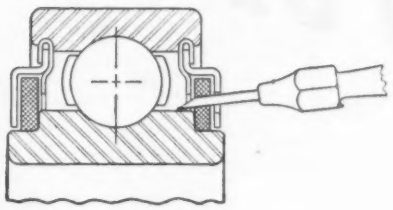
Two new departures in Self-sealed Bearings

1. A new more nearly friction-free seal, more efficient under all conditions.

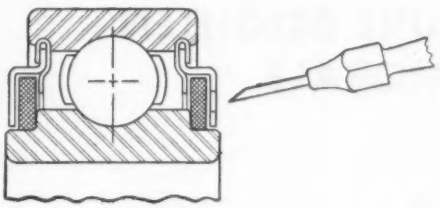
2. A quick, easy method of revitalizing the bearing lubricant to vastly extend its useful life under adverse conditions.

. . . *and it's just this simple:*

"Hypodermic" nozzle on pressure oiler is inserted through small hole in outer metal of New Departure seal and pierces the felt. A "shot" of oil or low shear grease is injected into bearing.



"Hypodermic" is withdrawn and the resilient, hard woven felt closes up, leaving no hole for dirt or oil to pass. Lubricant rejuvenated, the bearing is now all set for another long term of service without attention.



WITH the combined advantages of these two developments, New Departure sealed bearings, better than ever before, can satisfy a wide range of operating conditions. The light running seal is a "natural" for high speeds, yet its ability to keep dirt out — prevent lubricant leakage at any speed is phenomenal.

Heretofore in special cases, adverse conditions, such as high surrounding temperatures have shortened lubricant life. But now a shot from the new injection system at intervals dictated by circumstances, and old or hardened grease can be quickly revitalized—can double or triple the length of service formerly obtained.

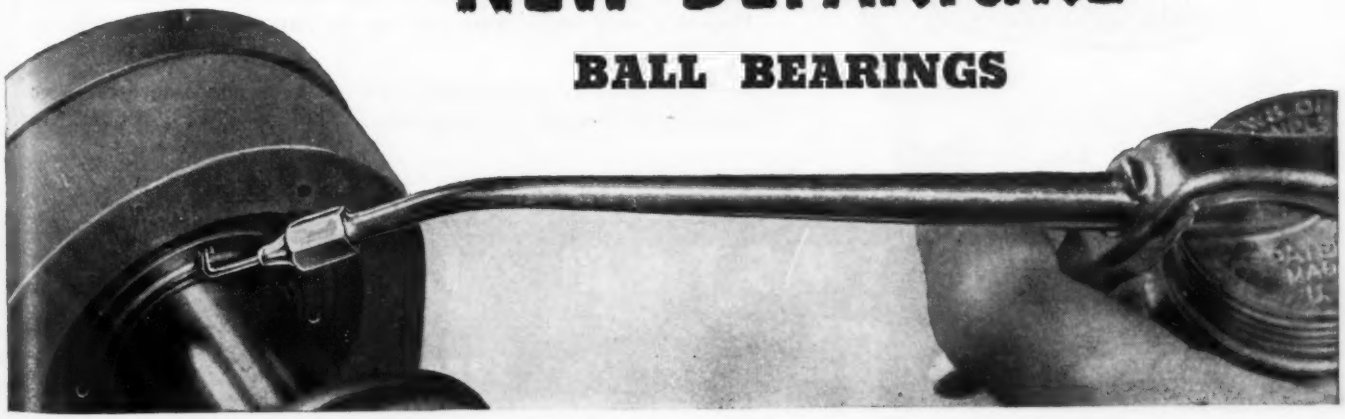
The new injection system can be used or not, as conditions require. For engineers interested in these new departures for postwar use we offer a bulletin giving complete details.

New Departure, Division of General Motors, Bristol, Connecticut.

3308

NEW DEPARTURE

BALL BEARINGS



Brighten your walls with a SETOL cleaning

..AND YOU'LL BRIGHTEN WORKER MORALE

What a world of difference is made when grease and grime are removed from mill and factory walls! And what a world of difference the fresher, brighter surroundings make in worker efficiency! *Setol*, a mineral oil solvent, penetrates and removes from painted walls and ceilings even the most stubborn coatings of grease and grime . . . quickly, thoroughly, *safely*. Contains no harmful properties that *clean away* the finish. Thus *Setol* encourages more frequent cleaning . . . saves frequent re-decorating—especially important now when man-power and materials are so limited.

Wherever grease, grime, and oil collect — on walls, woodwork, ceilings, floors — *Setol* affords a labor-saving solution to the cleaning problem. Long recognized for its marvelous cleansing action on mill and factory floors, *Setol* surpasses all other types of cleansers for use in scrubbing machines on such floors. Economical to use . . . reaches saturation with 1 lb. in 10 gallons of water. *Setol* is both soluble and sudsless. Compounded in *Finnell's* own mill, and put up in barrels, half-barrels, and quarter-barrels.

For literature or consultation, phone or write nearest *Finnell* branch or Finnell System, Inc., **1911** East St., Elkhart, Ind.

FINNELL SYSTEM, INC.

Pioneers and Specialists in

FLOOR-MAINTENANCE EQUIPMENT AND SUPPLIES

BRANCHES IN ALL PRINCIPAL CITIES

Keep Oil Films on this track!

SLIDE, slide, slide—for 100 feet or more—through the high temperatures of pre-shrinking processes. That's what the long chains do here, on this tentering frame.

Oil is supplied drop by drop! It must provide a strong film between the track and the clamps for the entire length of the track. What's more, the film must resist deterioration from heat while passing through the pre-shrinking oven.

You'll find that Gargoyle Vacuoline Oil AA, gives you both strong films and high resistance to oxidation for this important tentering frame job. It has proved its superior qualities in many mills through the years.

Keep Gargoyle Vacuoline Oil AA, on your tentering frame tracks and keep wear to a minimum.

GARGOYLE Lubricants

SOCONY-VACUUM OIL CO., INC.
Standard Oil of N. Y. Div. · White Star Div. · Lubrite Div. · Chicago Div. White Eagle Div. · Wadhams Div. Magnolia Petroleum Co. · General Petroleum Corporation of California.

CALL IN SOCONY-VACUUM

. . . they are *Seals of Quality . . . Pledges of Value . . . Buyers' Guides . . .* and above all *Good Names!*

You who have Saco-Lowell equipment in your mills know that this is true of the Saco-Lowell label, so when it comes to the repair parts you use, you should insist on the security that this label implies and guarantees. Every genuine Saco-Lowell repair part is an exact duplicate as to material and dimension of the part it replaces . . . thus preserving the mechanical integrity of your original equipment and giving you the same efficiency and fine performance that you expect of all machinery bearing the name Saco-Lowell.

Saco-Lowell Shops

60 BATTERYMARCH STREET, BOSTON, MASSACHUSETTS ***Charlotte · Greenville Atlanta***

SANDOZ PRESENTS

the color achievement of the month

Sleepy Rose BY SPRINGFIELD

Sleep . . . rose-warm sleep . . . will come to her quick as an eye-blink under the luxury-lightness, the soft pastel shades and rich bindings of blankets bearing Springfield's label of white and gold.

Sandoz congratulates the Springfield Woolen Mills Company on the quality of its famous trousseau blankets . . . and points also to the "perfect wedding" of materials and dyes which helps give them their special lustre.

Typical of Sandoz' developments for salesworthy and profitable dyeing of products such as these are its Fast-to-Light Milling Colors such as Brilliant Alizarine Milling Blue BL (Pat.) and Levana — a protective and leveling agent for the dyeing of milling and chrome colors on wool.

Out of Sandoz' laboratories . . . "thinking ahead with textiles," also come exclusive Sandoz Metomega Chrome Colors, which have proved especially useful in saving the time of skilled personnel. Formulas can be checked after 15 minutes. Boiling time can be reduced 50%.

To assist *you* in obtaining the proper acid or chrome or direct dyes, or auxiliary chemicals for *all* natural and synthetic fibres, Sandoz application laboratories are maintained in New York, Boston, Philadelphia, Charlotte, Los Angeles and Toronto. Stocks are carried in those cities. Other Sandoz branches are located in: Chicago, Paterson and Providence.

Watch for another "Color Achievement of the Month" — next month — featuring another Sandoz customer in the textile hit parade.

SANDOZ CHEMICAL WORKS, INC., 61 VAN DAM STREET, NEW YORK 13, N.Y.

SANDOZ *thinks ahead with textiles*

S SANDOZ

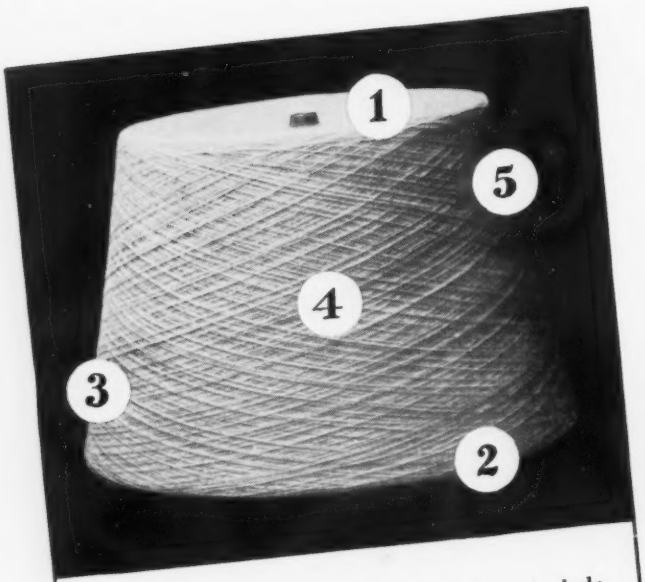
CONES THAT SATISFY KNITTERS FROM THE MACHINE THAT SIMPLIFIES CONING

More and more knitters consider Roto-Cones *standard* for cotton knitting yarns. Yarn mills operating Roto-Coners* report enthusiastic reception and requests for *more* Roto-Cones. Meanwhile, orders already received from spinners indicate a widespread intention to replace old winding equipment with Roto-Coners*, the modern drum winders which simplify operation and maintenance and offer the opportunity to increase winding production.

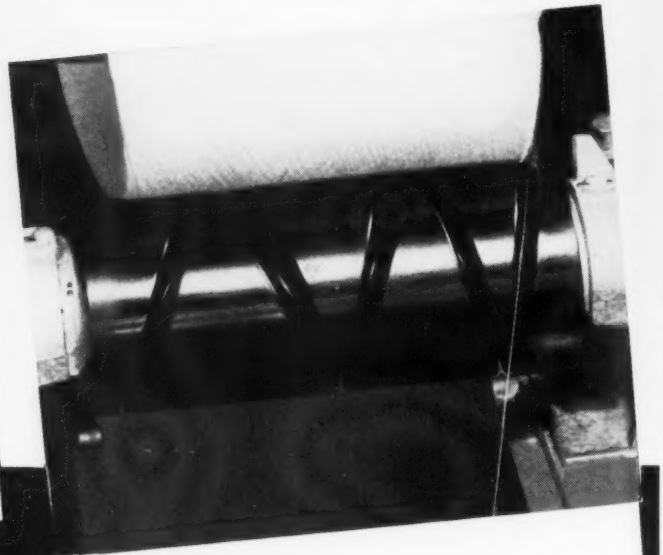
Universal Winding Company

PROVIDENCE BOSTON UTICA PHILADELPHIA
CHARLOTTE ATLANTA

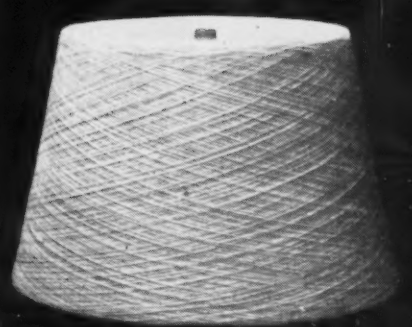
* Reg. U. S. Pat. Off.



Roto-Cone features appreciated by knitters include (1) shallow, crush-resistant nose end; (2) fewer stitches due to quick traverse reversal; (3) accelerated taper for free yarn delivery; (4) steep-angle wind for better delivery; (5) freedom from roll cuts and chafed yarn. They also like the uniformity of Roto-Cones—always produced under standard conditions, with the same Rotary Traverse, with uniform settings.



Nothing could be more simple than the Rotary Traverse—which guides the yarn while it drives the package. Made of plastic for cotton yarns, of cast-iron for spun rayon and other yarns, it eliminates cams, guides and other parts which limit winding speed, which wear fast, and introduce the chance of inequalities in winding from spindle to spindle.



ROTO-CONER* LEESONA REG. U. S. PAT. OFF.

Open-Wind Cones for Knitting

WARPING CONES · DYEING PACKAGES · PARALLEL TUBES FOR TWISTING

OWI Photo by Palmer in an Allegheny Ludlum plant

AMERICAN TREASURY... THIS YEAR'S STYLE

HAND BOOK OF SPECIAL STEELS

Newly revised and reprinted—a comprehensive book on the properties, uses, and best methods of handling, treatment, etc. of tool, stainless and other alloy steels. Plenty of tables to facilitate quick reference and selection. 136 pages, pocket-sized, latest data.

SEND FOR YOUR COPY

Address Dept. TW-26

THOSE slabs and billets of special high-alloy steels, awaiting further processing in Allegheny Ludlum plants, are raw materials for the world's finest mechanical equipment. They're also the main reason *why* it's the finest. Special steels give the extra performance—the superior electrical properties, or strength and toughness, or resistance to heat, wear and corrosion, as the case may be—that gives one product the edge over another.

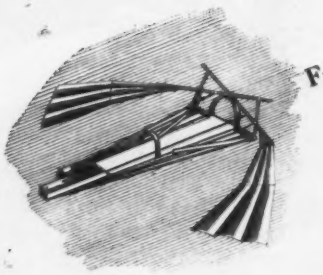
That is true for combat equipment, and it's true for commercial products. Our principal high-alloy products are corrosion and heat-resisting, tool and die, electrical, valve and nitriding steels. Many of them we originated. Let us help you to fit them into your products and plans, and to handle them economically.

Allegheny Ludlum
STEEL CORPORATION
BRACKENRIDGE, PENNSYLVANIA

W&D A-9338

Leonardo's greatness lay in his VERSATILITY

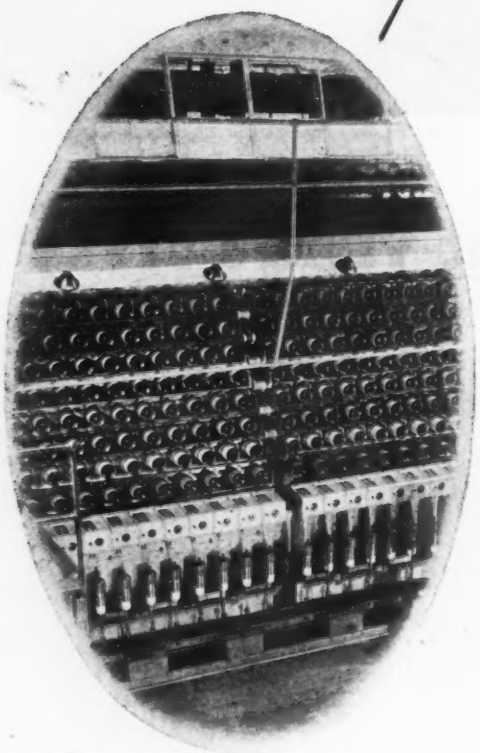
to Oil Painting



From Flying Machines

. . . and in dozens of other creations and inventions da Vinci's genius proved inexhaustible.

The greatness of INDUSTRIAL'S, "Continuous Process" Spun-lo Rayon Yarn lies in its VERSATILITY, too.



The Continuous Process Machine

THE ingenious "Continuous Process" owes its existence to the almost human machines that actually spin, wash, bleach, treat, dry and twist the individual threads of Rayon, continuously, without once being touched by a human hand in the entire process. So delicate are these machines and so versatile, that they are equally capable of producing yarn of a denier tough enough and thick enough to make a superior tire cord, or delicate and fine enough to weave a fabric fit for a fairy queen. What means most to you is the fact that *all* the yarn produced is cleaner, entirely uniform, devoid of knots and broken filaments, runs more continuously in mills, and produces a finer end-product.

NOT much "Continuous Process" Yarn for civilian purposes today—but now's the time to study the characteristics of this superior yarn in connection with whatever post-war plans you may be formulating.

*Reg. U. S. Pat. Off.

Industrial RAYON CORPORATION MAKERS OF Spun-lo RAYON YARN BY THE

CLEVELAND, OHIO · NEW YORK OFFICE, 500 FIFTH AVENUE

When Accuracy is a Must

On the horizon's rim, the enemy maneuvers desperately to elude the conflict. The first salvos must find their marks to assure decisive action.

The range finder brings twin images into sharp coincidence . . . the range is worked into a formula with speed and course, barometric pressure, air temperature and humidity, wind deflection, powder temperature. Within seconds the turrets swing and the huge guns roar . . . the spotter checks the pattern of a perfect salvo, amazing in its accuracy, which initiates another great naval victory.

Accuracy in the manufacture of many products is today accepted almost casually. But intense and constant effort is required to maintain these high standards. Columbia, recognizing the problems of its customers, helps to make their task easier by furnishing chemicals which meet exacting specifications.

COLUMBIA CHEMICALS

PITTSBURGH PLATE GLASS COMPANY
COLUMBIA CHEMICAL DIVISION
GRANT BUILDING · PITTSBURGH 19, PA.

CHICAGO · BOSTON · ST. LOUIS · PITTSBURGH · NEW YORK · CINCINNATI
CLEVELAND · PHILADELPHIA · MINNEAPOLIS · CHARLOTTE

COLUMBIA SPOTLIGHT

RIVER TRANSPORTATION of Chlorine has received strong impetus as the result of a new barge designed and perfected by Columbia. Cradling four huge tanks in its 135 foot length, the barge transported 380 tons of Liquid Chlorine on its maiden voyage in September from Natrium to Charleston, W. Va. Formerly, all river shipments had been limited to one-ton containers—a slow and tedious handling method in comparison with the new barge. This is the latest of numerous improvements in the transportation of Chlorine and other chemicals introduced by Columbia.

CHLORINE MARKETS—If you are interested in developments in the manufacture of Chlorine and the probable part this chemical will have in the postwar period, an enlightening analysis is presented in the article published in the August issue of *Chemical & Metallurgical Engineering*, page 115. Included are data on plant expansion and manufacturing methods, new and potential uses of Chlorine.

COLUMBIA RESEARCH—Though they have not been glamourized, the activities of Columbia's Research Laboratories have contributed much to the nation's war effort. Synthetic, natural and reclaimed rubber, textiles, plastics for aircraft, water purification and chemicals for other military uses—these are but a few of the important fields in which this research has played a vital role. And it will have an equally important part in serving the world's needs when peace has been restored.

NO INHIBITORS are required in Columbia's thermosetting plastic, Allymer, to prevent polymerization while in storage. Allymer may be stored under ordinary conditions for several months without appreciable change. This stability eliminates the distillation or washing processes necessary for removal of inhibitors used in older monomers, and facilitates mass shipment and storage. Data and reports of extensive research on Allymer may be obtained on request.

COLUMBIA CHEMICALS include Soda Ash, Caustic Soda, Sodium Bicarbonate, Liquid Chlorine, Silene EF (Hydrated Calcium Silicate), Calcium Chloride, Soda Briquettes, Modified Sodas, Caustic Ash, Phosflake, Calcene T (Precipitated Calcium Carbonate) and Calcium Hypochlorite.

A VIEW OF THE PAST

GIVES A *Clue to the*

The first World War gave a mighty impetus to the young rayon industry. World War II sees rayon repay that debt many times over.

When the Army and Navy called for certain split-hair specifications, rayon met them with yarn for tire cord, yarns for parachutes and a hundred and one other war essentials. At the same time rayon has kept up the flow of civilian fabrics so necessary to morale on the home front.

In this phenomenal wartime performance, we catch a glimpse of rayon's future. A great industry, geared to expand and improve in the fields of fashion, transportation, housewares, industrial uses; prepared to strike out in whatever new directions will lead quickest to our goal—*the more abundant life for the greatest number of people.*

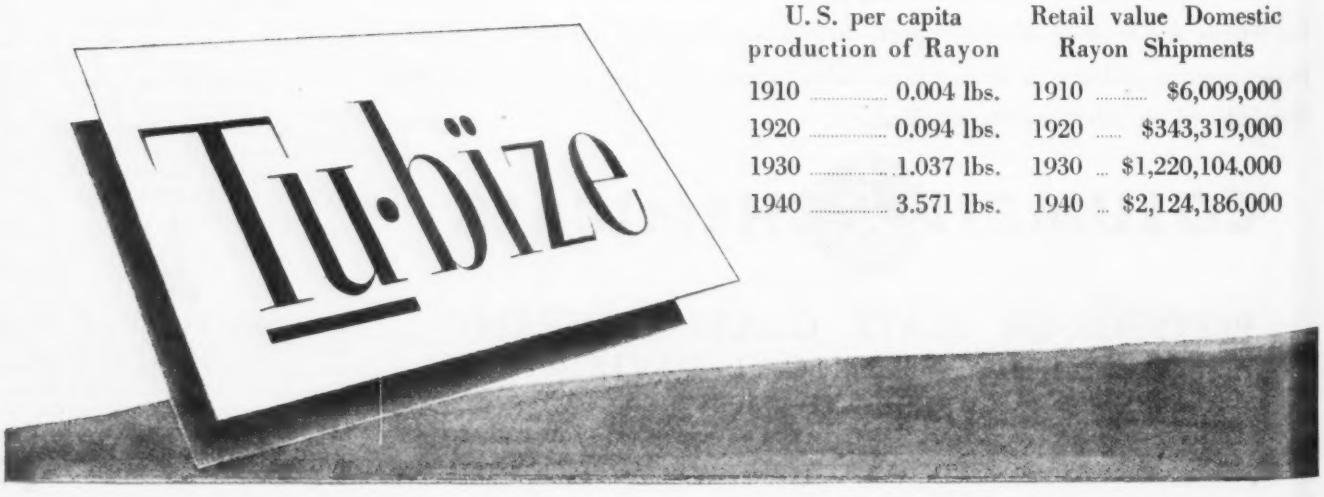
TUBIZE RAYON CORPORATION

Acetate and Viscose Rayon Yarns and Fabrics

2 Park Avenue, New York 16, N. Y.

30 YEARS OF RAYON POINTS THE WAY

BLACK LINE		RED LINE	
U. S. per capita production of Rayon		Retail value Domestic Rayon Shipments	
1910	0.004 lbs.	1910	$6,009,000
1920	0.094 lbs.	1920	$343,319,000
1930	1.037 lbs.	1930	$1,220,104,000
1940	3.571 lbs.	1940	$2,124,186,000

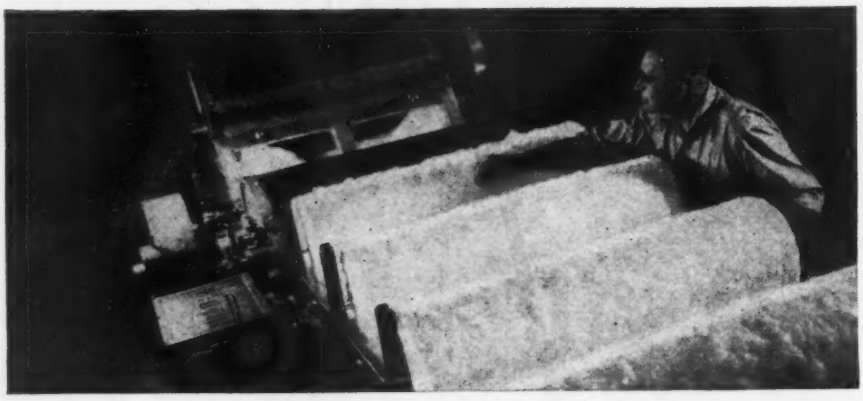


Future
?
1910
1920
1930
1940
1950

RAYON REPORTS

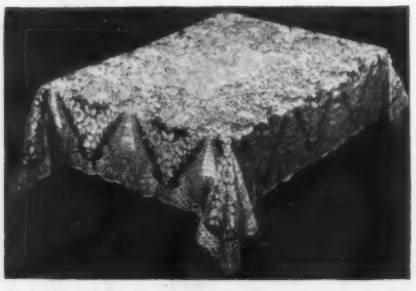
Published Monthly by American Viscose Corporation, New York, N. Y. NOVEMBER, 1944

PRODUCTION MACHINERY IN RESEARCH PLANT



One of the unique features of the Textile Research Department of the American Viscose Corporation at Marcus Hook, Pa., is the machinery installed there. These machines are commercial mill size; and they include all types for the handling of rayon from raw stock to finished yarns or fabrics. Shown here is a blend being produced on a Whitin finished picker.

QUAKER LACE TABLECLOTHS PASS "CROWN" TESTS



A new line of fine lace tablecloths . . . 75% filament viscose rayon and 25% cotton . . . are being marketed under the CROWN Tested Amber Tag. Made by the Quaker Lace Company, they are unusual not only for their beauty, but also for their serviceability.

CROWN Tests predict they can be hand-washed or machine-washed at 105° F., without any special care. They have good resistance to fading and sunlight; no color loss was observed after 40 hours in the Fadeometer. Throughout all laundering tests, their finish remained unchanged.

The cloth shown here was machine-wash tested 15 times. Others have been washed up to 51 times.

VICTORY SHIFTS AT A. V. C. MEADVILLE PLANT

The Meadville, Pa., plant of the American Viscose Corporation, which manufactures acetate rayon yarn, has inaugurated "victory shifts" on which high school boys and girls 16 years of age or older go to work on general production jobs to aid in the war effort. Students are being used on light work only, so they will not be too tired to do their school work properly. The students working the "victory shifts" are actually making a real contribution to the war effort, since many of the plant's products are made under war contract for use by the Armed Forces.

NEW TREATED RAYON CLOTH FOR BOOKBINDING

A new bookbinding cloth, called "Terek Raylin," has been developed by the Athol Manufacturing Company, Athol, Mass. The new product is a viscose process rayon taffeta impregnated with pyroxylin.

Additional strength and brightness of color are imparted by the treatment of the fabric. Book covers made with this cloth can be printed as well as die-stamped, and it lends itself readily to all binding operations.

First important application of the new cloth is a book on baby care just published by Simon & Schuster. The book was printed by American Book-Stratford Press.

The cloth is an outgrowth of research on war products conducted by Athol in cooperation with the Massachusetts Institute of Technology. The development of a new process for coating and impregnating fabrics for life raft sails and other military uses has made this peacetime use for rayon possible, according to the company.

MAKE USE OF 4-PLY SERVICE

1 PRODUCT RESEARCH
Helps you get the right yarn or fiber.

2 FABRIC DEVELOPMENT
Helps you design new fabrics.

3 TEXTILE RESEARCH
Helps solve production and finishing problems.

4 "CROWN" TESTED
Helps provide scientific selling facts.

AMERICAN VISCOSE CORPORATION
Producer of
CROWN* *Rayon Yarns and Staple Fibers*

Sales Offices: 350 Fifth Avenue, N. Y. C. 1; Providence, R. I.; Charlotte, N. C.; Philadelphia, Pa.

Plants at: Marcus Hook, Pa.; Roanoke, Va.; Lewistown, Pa.; Nitro, W. Va.; Parkersburg, W. Va.; Meadville, Pa.; Front Royal, Va.

*Reg. U. S. Pat. Off.

ALOYCO STAINLESS STEEL VALVES

FOR A LONG LIFE FREE FROM SHUTDOWNS!

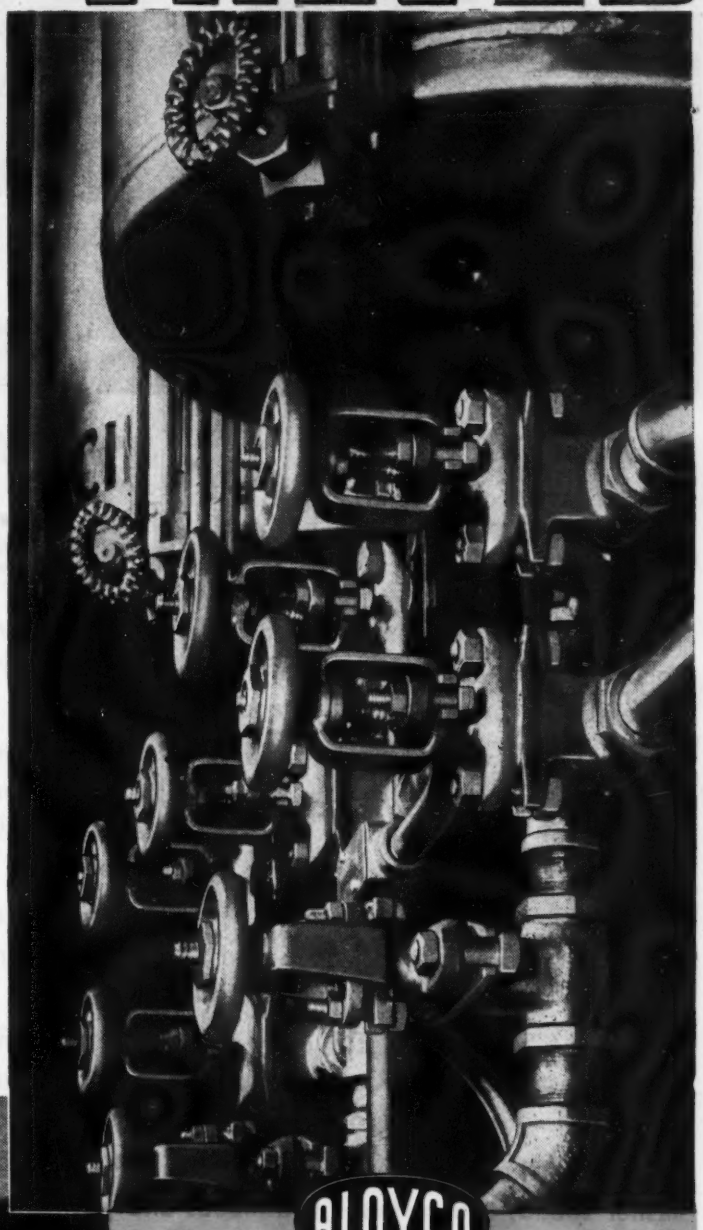
Pipe line shutdowns in process industries can be very costly. That is why important producers of high octane gasoline, synthetic rubber, explosives, pharmaceuticals and other precious materials use Aloyco Stainless Steel Valves.

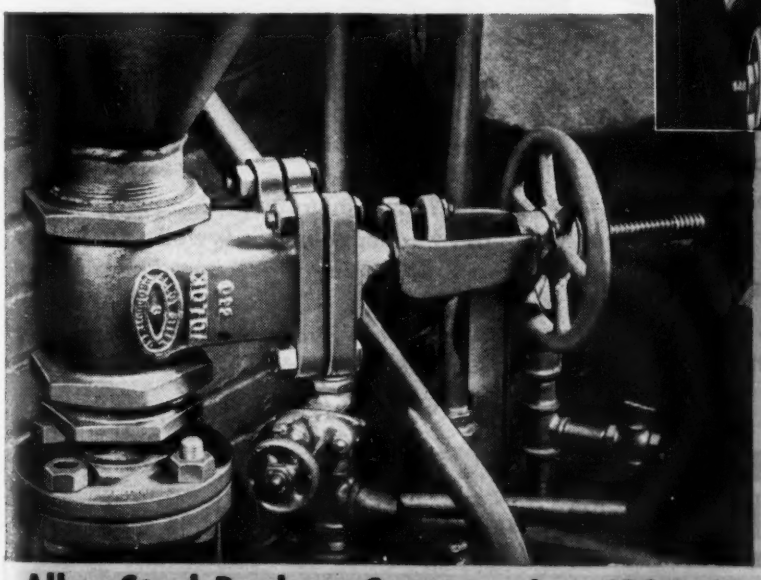
The exceptional durability that has resulted in this customer preference springs from the sound design, correct analysis, experienced foundry practice, careful heat treatment, accurate machining and rigid inspection that are standard procedure at Alloy Steel Products Company. Only a company that specializes in the manufacture of stainless steel valves can afford these safeguards.

Aloyco Stainless Steel Valves and Fittings are available now for new installations on high priorities and for maintenance and repairs under M. R. O. regulations.

ALOYCO VALVES GUARD CRITICAL LINES AT CIBA

Precious fluids flow through the many Aloyco Valves used in the Summit, New Jersey, plant of Ciba Pharmaceutical Products, Inc. It is essential that these valves be of the highest quality and that they can be disassembled for cleaning in one minute. Not only must they remain chemically inert in the presence of all kinds of organic mixtures and acids, but they must function with absolute reliability when extremely costly substances are being handled.



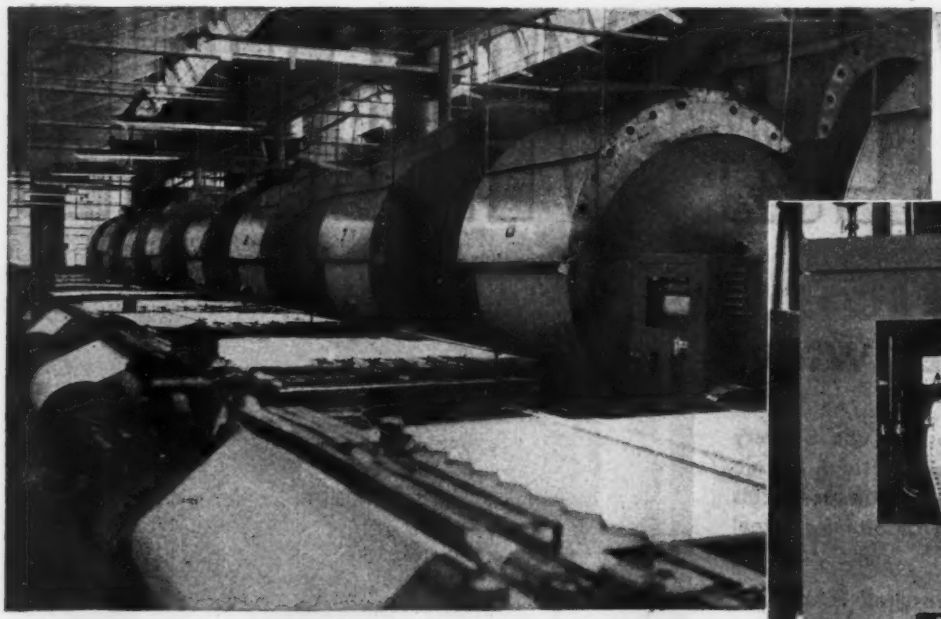


ALOYCO

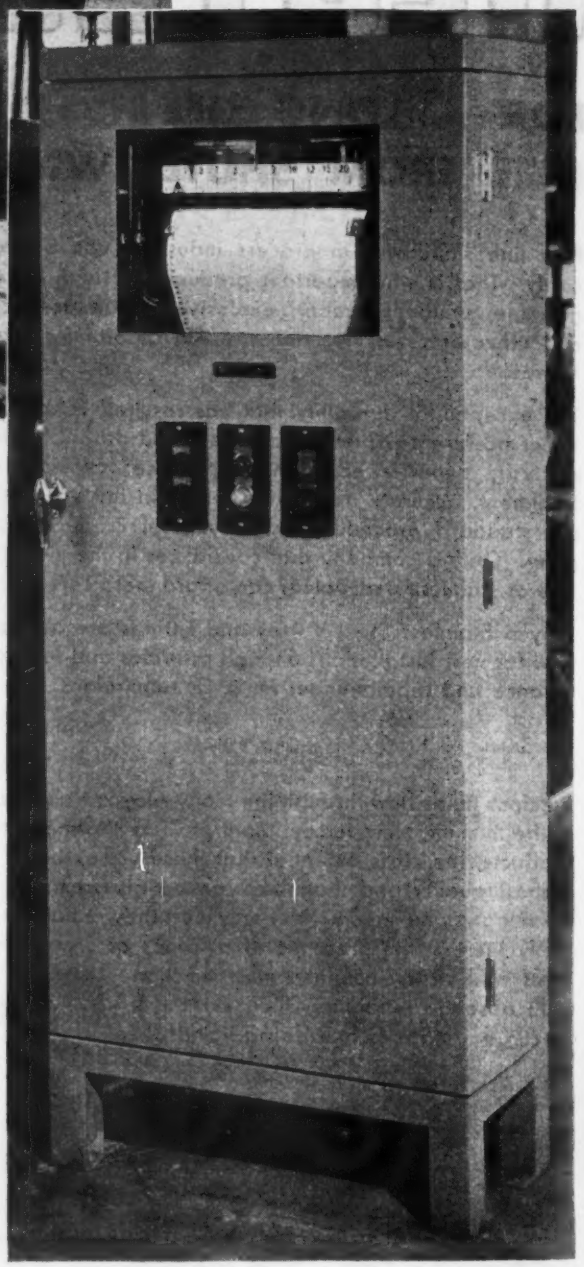
Stainless Steel
VALVES and FITTINGS

GATE VALVES • GLOBE VALVES
Y VALVES • CHECK VALVES
LEVER THROTTLE GATE VALVES
TANK VALVES • SCREWED FITTINGS
FLANGED FITTINGS
GAUGE GLASS FITTINGS

Alloy Steel Products Company, Inc., 1304 West Elizabeth Avenue, Linden, N. J.



Slashers at West Point Mfg. Company, West Point, Ga., are controlled by The Brown Moist-o-graph System.



HOW WET or DRY IS YOUR WARP?

Guessing moisture content is costly—*baked or dry warps* mean poor weaving, chafing, and excessive fly. Over-wet warps mean mildew and rust stains.

Where warps are running too dry or too wet, the Brown MOIST-o-GRAPH eliminates guesswork. It controls slasher speed to insure a uniformly level warp to meet your particular weave room requirements.

It measures, records and controls the exact moisture content, thereby giving you a better weaving warp which will increase weave room production.

Further, by maintaining the correct moisture content, the Brown MOIST-o-GRAPH Controller permits lower humidity in the weave room.

The Brown MOIST-o-GRAPH maintains the correct slasher speed, and makes a continuous and permanent chart record of moisture content within one-half of one percent. Ranges for cotton are 4% to 12% and for rayon 1% to 20%.

Users of Brown MOIST-o-GRAPH control systems have increased slasher speeds as much as 40%, and have noticeably increased weave room production. You can do likewise!

Write The Brown Instrument Company, a division of Minneapolis-Honeywell Regulator Company, 4509 Wayne Avenue, Philadelphia 44, Pennsylvania. Offices in all principal cities. 119 Peter Street, Toronto, Canada—Wadsworth Road, Perivale, Middlesex, England—Nybrokajen 7, Stockholm, Sweden.

BROWN MOIST-O-GRAPH

To Measure and Control is to Economize

A 4 in 1
COLORED YARN SERVICE
and 5 reasons for using it
1 Four yarn dyeing plants to choose from but only one uniform quality. All plants use the same formulas for standard shades and the same process.
2 You benefit from both special and general experience;—special because each of our plants specializes in serving one or more branches of the textile industry: general because the experience of one plant becomes the experience of all through our "shuttle system",—exchange of information.
3 We supply yarn as well as dyeing.
4 We dye by the original Franklin Process, which has revolutionized yarn dyeing.
5 We can dye up to 2500 lbs. of yarn in one batch, thus assuring prompt handling and uniform shades on large as well as small orders.
If you make fabrics requiring cotton, worsted, spun rayon, or blended colored yarns, contact our nearest office and we'll tell you which plant can best serve you.
Franklin Process
LARGEST PACKAGE DYERS IN THE WORLD
Providence • Philadelphia • Greenville • Chattanooga • New York Representative: 40 Worth St., Chicago Representative, 100 West Monroe St.
Drying Room In a Franklin Process Plant

DON'T BE PENNY WISE AND POUND FOOLISH

USE ASHWORTH CARD SURVEYS

Ashworth Card Surveys enable you to spot sources of trouble before they get serious and cause defective work. They enable you to plan repairs over a period of months with minimum loss of production.

These surveys of clothing, chains, bearings and other wearing parts, are made by practical card men who recommend only *necessary* repairs. Their time costs you nothing.

When you need card clothing products, Ashworth's 3 factories, 6 repair shops and 7 distributing points assure you an uninterrupted supply, prompt service and ready availability.

ASHWORTH BROS., INC., Woolen Div., AMERICAN CARD CLOTHING CO.

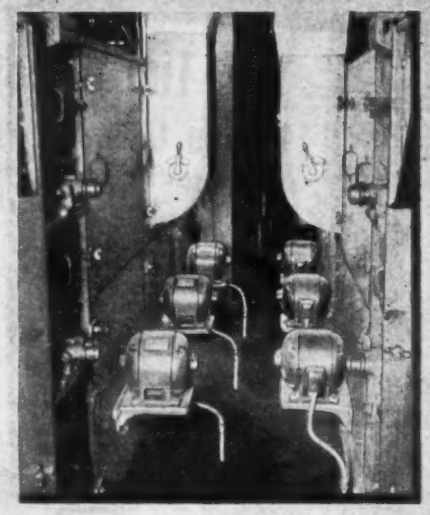
FALL RIVER*†‡ WORCESTER*‡ PHILADELPHIA*†‡ CHARLOTTE†‡ GREENVILLE†‡
ATLANTA†‡ DALLAS†‡ (Textile Supply Co.)

**Factory • †Repair Shop • ‡Distributing Point*

PRODUCTS AND SERVICES: Card Clothing for Cotton, Wool, Worsted, Silk and Asbestos Cards and for all Types of Napping Machinery • Brusher Clothing and Card Clothing for Special Purposes • Lickerin Wire and Garnet Wire • Sole Distributors for Platt's Metallic Wire • Lickerins and Top Flats Reclothed.

WHEN THE HEAT'S ON

Motor-driven machinery is often called upon to operate under conditions of extreme heat and humidity. For example, the motors on this wool-plant washer must operate in an air temperature of 100° F., with humidity higher than 80 per cent. Conditions like this would shorten the life of any motor lacking effective, performance-tested ventilation design. The double-end cooling system of the Tri-Clad motor helps offset the effects of high ambient temperatures common to heaters, dryers, and many ventilating-fan applications. In addition, motor windings of Formex wire (Class A insulation) are unusually long-lived under total temperatures (ambient plus rise) up to 194 F. For even higher temperatures, Class B insulation offers still greater protection.



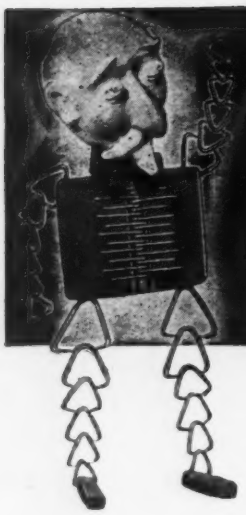
G-E Tri-Clad motors applied to Sargent back washers at plant of the Southwell Wool Combing Company, No. Chelmsford, Mass.

Multi-Point Tests on TRI CLAD Motors Tell Temperature Conditions Inside and Out

Dozens of thermo-couples and thermometers at all vital points of this Tri-Clad motor reveal temperatures under a wide range of load conditions. First, tests like this helped to perfect the double-end ventilation design. Now regular tests of Tri-Clad motors taken off the production line verify previously established temperature-rise limits, and ability of insulation to stand up. Continued research along the same lines, including operation in enclosures which restrict air flow, points the way to further improvements in the future. *General Electric Company, Schenectady 5, N. Y.*

GENERAL ELECTRIC

Every week 192,000 G-E employees purchase more than a million dollars' worth of War Bonds.

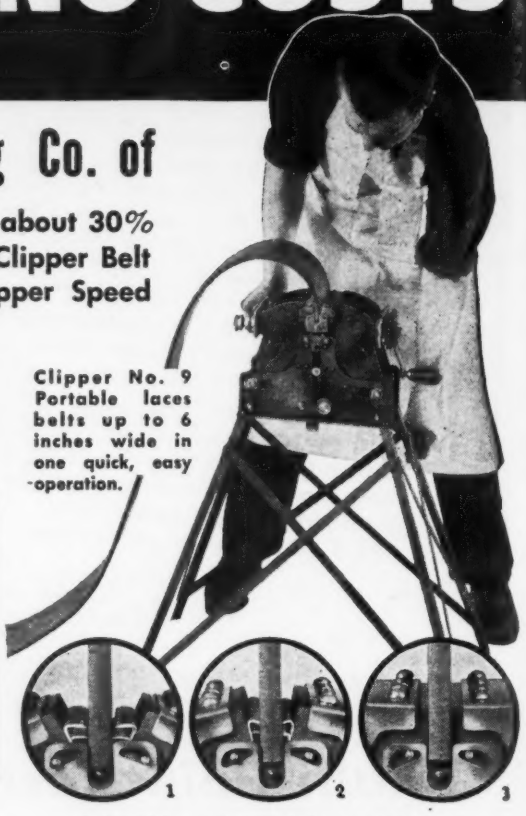


SAVE 30% ON YOUR BELT LACING COSTS

The Timken Roller Bearing Co. of Canton, Ohio, has effected a saving of about 30% in consumption of belt hooks by using Clipper Belt Hooks, Clipper Lubrihide Pins and Clipper Speed Lacers.

You, too, can make worth-while savings by using ALL THREE Clipper products.

Remember, only Clipper Belt Hooks are packed with the long wearing **Lubrihide Pins.**



Clipper No. 9 Portable laces belts up to 6 inches wide in one quick, easy operation.

The **Clipper No. 9 Portable Lacer** develops pressures up to 16 tons. With such pressure, hook legs can be embedded flush with the surface of any kind of belt and points clinched.

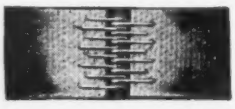
The scientific action of the jaws forms a perfect line of well rounded loops permitting the use of maximum diameter **Lubrihide Pin,** also providing equal distribution of pulling strain on every hook. A belt joint so made will outlast by two to three times one made with an old-style portable lacer.

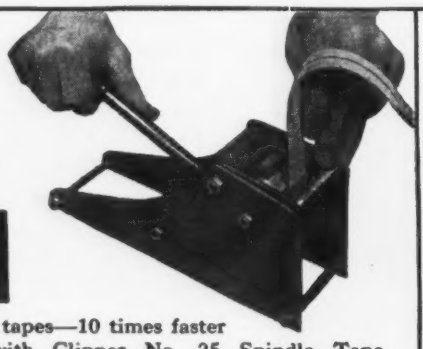
Scientific action of Jaws forms

a perfect loop for connecting pins.

We suggest that you check YOUR belt lacing situation. Send for folder describing the powerful Clipper No. 9 Portable Lacer and other Clipper products. Phone your Mill Supply Jobber for a demonstration!

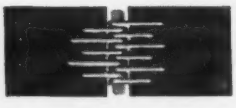
CLIPPER SPINDLE TAPE LACING EQUIPMENT

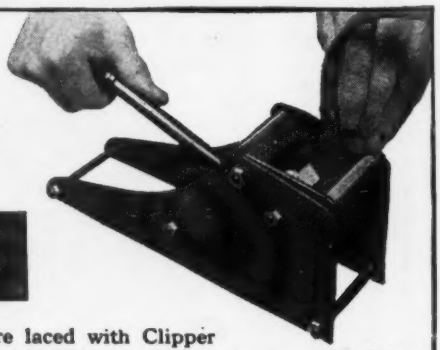




You can lace spindle tapes—10 times faster than stitching — with Clipper No. 25 Spindle Tape Hooks. The spinning frame is shut down only long enough to place the new tape on the pulleys and join the ends with the connecting pin — a short, easy operation. Tapes run true—last longer—run smoother—require less tension. VIBRATION is ELIMINATED.

CLIPPER CONDENSER TAPE LACING EQUIPMENT





Condenser tapes are laced with Clipper No. 25 Condenser Tape Hooks. The joint is as flexible as the tape itself. Clipper Laced Condenser Tapes can be installed in a fraction of the time required for endless tapes. Tape may be purchased in the roll at considerable saving, and cut to length. WRITE FOR INFORMATION.

CLIPPER BELT LACER COMPANY GRAND RAPIDS, MICHIGAN, U. S. A.

...a new tool of incredible speed and versatility...

The electronic tube may easily prove to be one of your most useful tools when you are confronted with reconversion headaches. Electronic tubes have proved that they save money in innumerable operations by increased speed and accuracy.

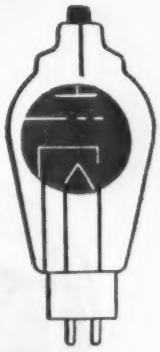
Take the textile industry for example. On warpers and winding reels a constant linear speed is required. Electronic tubes maintain a constant tension and at any given setting. Electronic tubes are also instrumental in close regulation over wide speed ranges on starch mangles, padders and sanforizers.

But—the use of electronic tubes is not confined to the manufacture of textiles.

For electronic devices you now have in service, or for new equipment you are planning, *always* specify and insist on Westinghouse Electronic Tubes—the tubes of assured uniformity and dependable performance.

QUICK LOCAL SERVICE ON INDUSTRIAL ELECTRONIC TUBES

Looking ahead to continued development of electronic equipment in industry, postwar, we now have a plan to make Westinghouse Electronic Tubes quickly and easily available. Stocks of the most widely used tubes are now available through Westinghouse Electronic Tube Distributors and Westinghouse District Warehouses. As rapidly as possible additional types will be added to local stocks to make a complete line of Quality Controlled Westinghouse Electronic Tubes available to everyone.



Westinghouse

PLANTS IN 25 CITIES OFFICES EVERYWHERE

Quality Controlled Electronic Tubes

WESTINGHOUSE PRESENTS John Charles Thomas • Sunday 2:30 EWT., N.B.C. ★ Ted Malone • Monday, Wednesday, Friday—10:15 EWT—Blue Network.

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SCIENTIFICALLY ENGINEERED FOR

Summed up!

BE SURE TO MAIL THE COUPON FOR YOUR FREE COPY OF THIS INFORMATIVE LUBRICATION HANDBOOK

★ *How is the Carbon Residue of a lubricant determined?*

★ *What is the significance of a lubricant's Neutralization Number?*

★ *What means are employed to determine Flash Point?*

To get concise, understandable answers to these and other questions about lubricants, send for a free copy of the new edition of "Tide Water Lubricania". This 20-page illustrated booklet gives graphic explanations of the methods and equipment used to determine specific qualities of lubricants — Viscosity, Pour Point, Penetration and other important properties.

Even more helpful — the booklet explains briefly the significance of each property as it affects the performance of lubricants in specific services. Every user and buyer of lubricants will find this information particularly helpful as a guide to choosing the right type of lubricant for each requirement.

Since the terminology and test methods described are universally accepted, the information given in "Tide Water Lubricania" can be applied to all lubricants regardless of make. Thus the booklet makes a permanently useful addition to your lubricant specification files. Be sure to mail the coupon today for your free copy of this useful lubricant guide.

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Tide Water lubrication experts are completely familiar with all phases of lubricant production and application. They know that the "Lubricania" tests are rigidly followed to build and maintain the high quality of Tycol Oils and Greases — quality lubricants scientifically engineered to meet every industrial use. Let a Tide Water engineer put that lubricant knowledge to work in your behalf. Write to your nearest Tide Water office for further information.

TIDE WATER ASSOCIATED OIL COMPANY

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Please send me a free copy of the latest edition of your illustrated booklet "Tide Water Lubricania."

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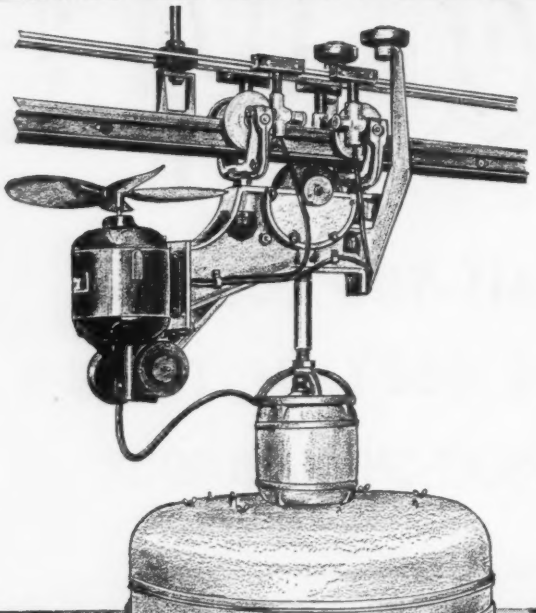
DRUMS! DRUMS! DRUMS!

War needs make it extremely important that all empty drums be returned immediately

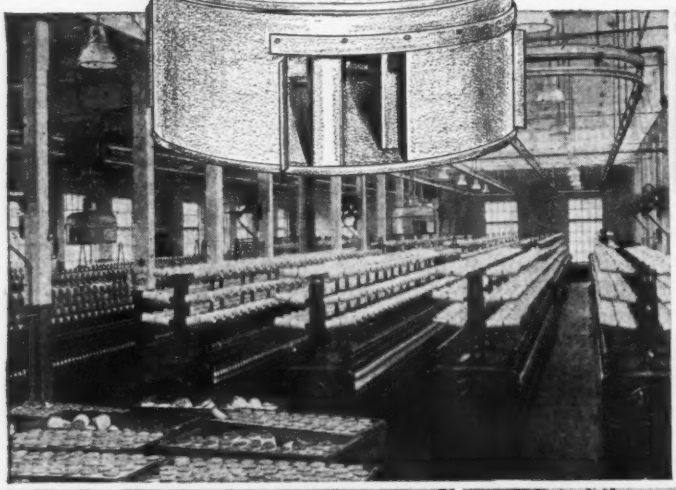
LUBRICANTS
EVERY INDUSTRIAL USE

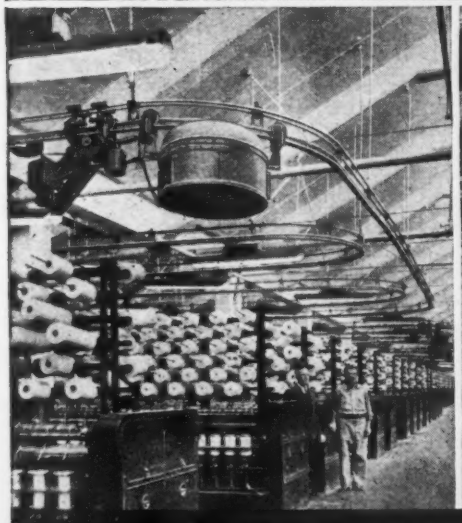
AMERICAN MONORAIL
AUTOMATIC CLEANERS

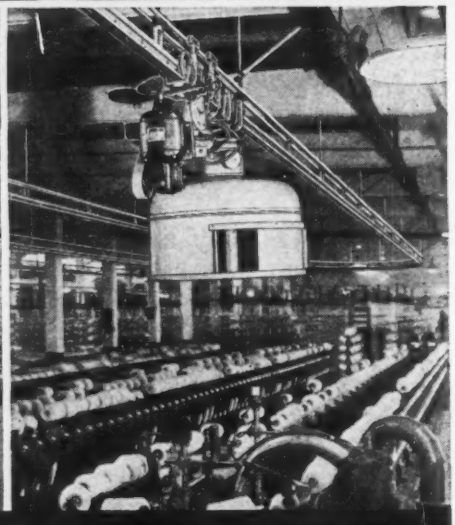


...CLEANS WITH A *Swirling* COLUMN OF AIR

LET an American MonoRail Engineer tell you the complete story of controlled Cyclonic Cleaning. Write for copy of the new 24 page book explaining many cost saving advantages.







1. Automatic Cleaning over winders, twisters, spoolers and warpers produces cleaner yarn with less breakage and stoppage on the looms.
2. Controlled downward swirl of the air currents prevents blowing of lint from one machine to another during cleaning.
3. Automatic devices can be installed to reduce cleaning velocity while blower travels over idle machines. This prevents unravelling of roving or yarn while keeping frames free from lint.
4. American MonoRail Cleaners can be assembled by mounting the blower as a trailer, in a variety of arrangements to overcome unusually low ceiling conditions at no extra cost.

THE AMERICAN MONORAIL COMPANY
13108 ATHENS AVENUE CLEVELAND 7, OHIO

"Stopping on a Dime"

is too slow for the War-Time Textile Industry

Zero inertia for reciprocating parts would give the machine designer an ideal condition. No slowing down for the turns. Parts could jump from full speed in one direction to full speed in the other.

Magnesium goes a long way toward providing that kind of equipment. The ring holders shown above, for example, are so light in weight that their direction of travel can instantly be reversed without much worry about inertia. Spinning and twisting machines can be run at higher speeds without setting up excessive vibration. Production is greater, quality higher, machine life longer.

Die cast by American Magnesium Corporation, these parts are light, strong and accurate. They are ready to go to work after a minimum of machining. Fabrication costs are low.

Magnesium is now available to manufacturers of other-than-war products, with W.P.B. approval. American Magnesium is equipped to take care of your requirements for die castings, permanent-mold and sand castings, forgings, extruded shapes and sheet. Our representatives will gladly discuss the availability of magnesium products with you. Aluminum Company of America (Sales Agent for Mazlo Magnesium Products) 1705 Gulf Building, Pittsburgh 19, Pennsylvania.

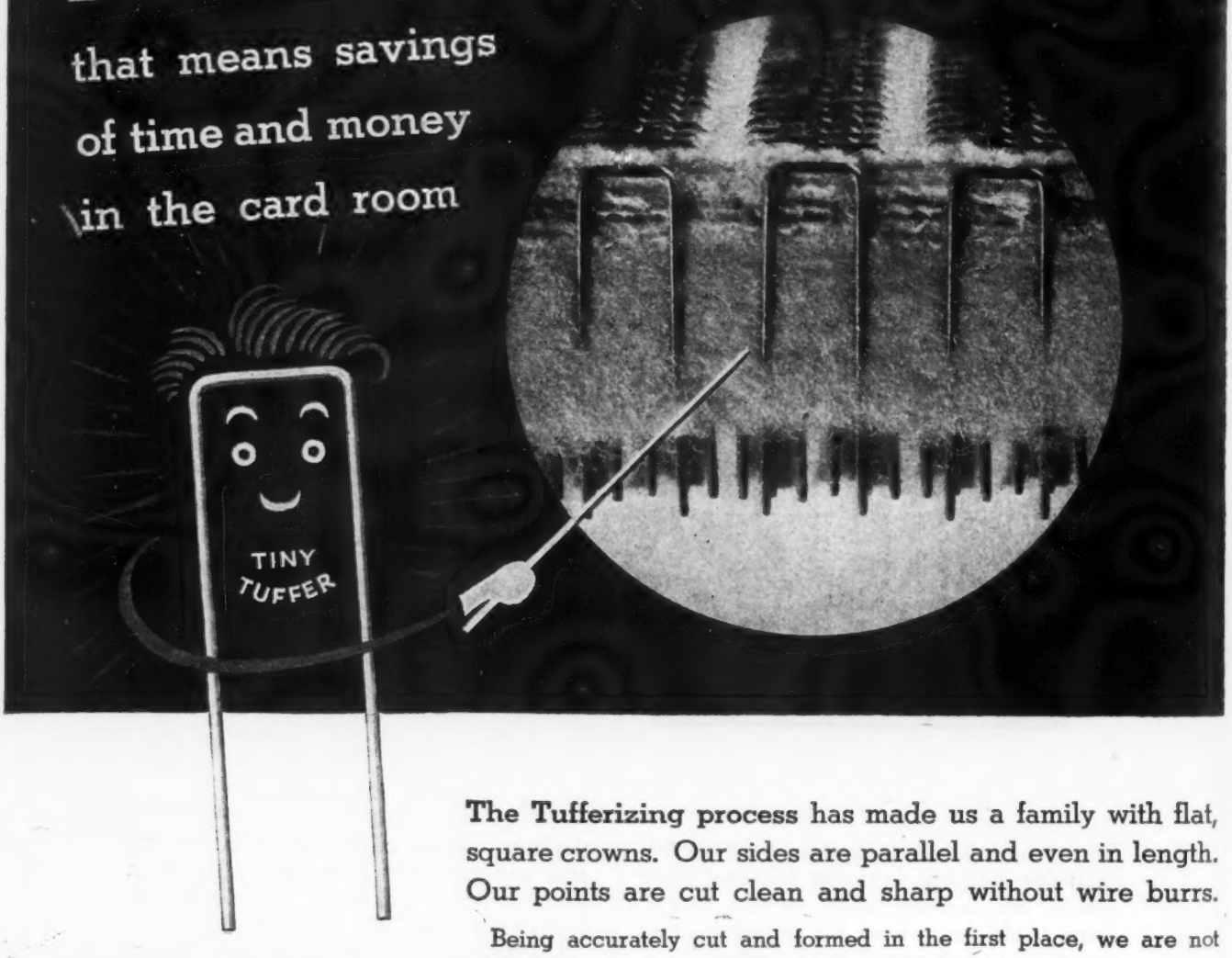
MAGNESIUM MAZLO PRODUCTS

AMERICAN MAGNESIUM CORPORATION

SUBSIDIARY OF ALUMINUM COMPANY OF AMERICA

It's "TUFFERIZED"

that means savings
of time and money
in the card room



The Tufferizing process has made us a family with flat, square crowns. Our sides are parallel and even in length. Our points are cut clean and sharp without wire burrs.

Being accurately cut and formed in the first place, we are not robbed of temper by excessive grinding to get us in shape to go on your cards. Our flat, square crowns nestle snugly between the cylinder and foundation so you can draw us up smoothly and evenly. Our sides remain parallel and our points stay in position at all times.

This means easier stripping, less grinding, longer life, better carding. You can't do better than to *standardize on Tuffer products.*

TUFFER CARD CLOTHING

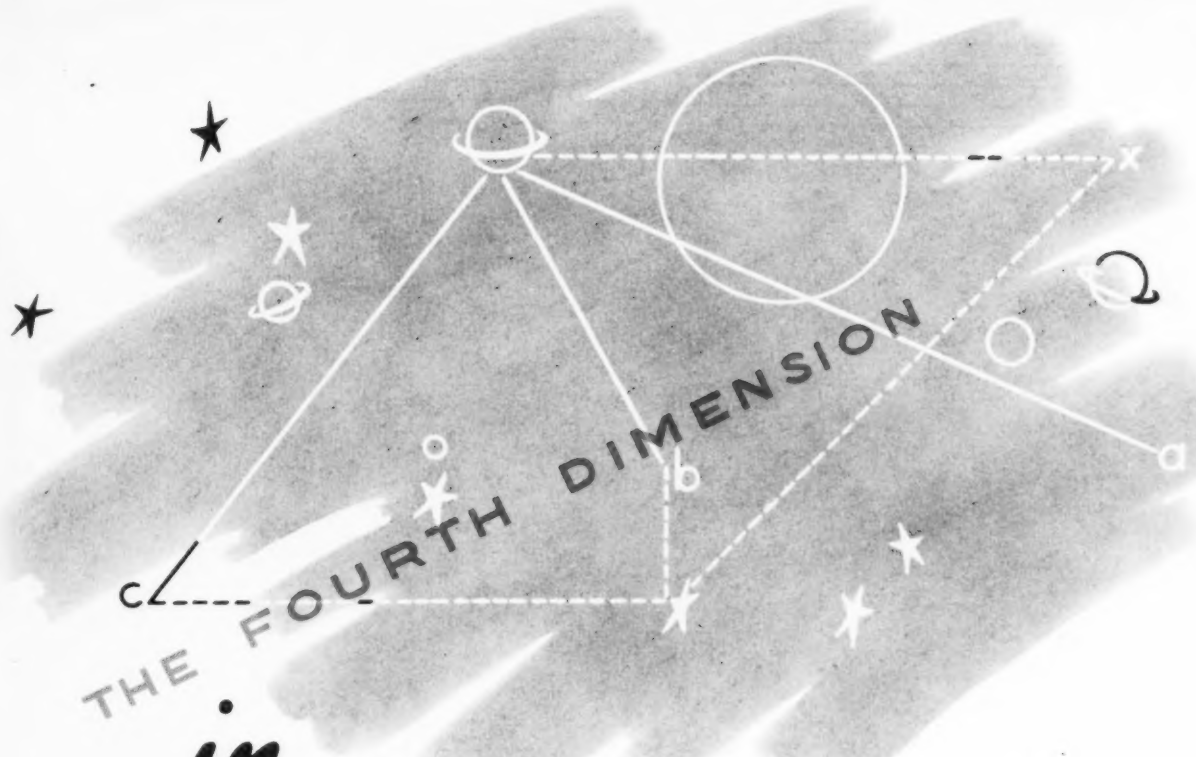
TUFFER PRODUCTS

Card Clothing for Woolen, Worsted, Cotton, Asbestos and Silk Cards • Napper Clothing, Brush Clothing, Strickles, Emery Fillets. Top Flats Recovered and extra sets loaned at all plants. Lickerins and Garnet Cylinders from 4 to 30 inches and Metallic Card Breasts Rewired at Southern Plant • Midgley Patented, and Howard's Special Hand Stripping Cards • Inserted Eye & Regular Wire Heddles

HOWARD BROS. MFG. CO.

WORCESTER, MASSACHUSETTS

Southern Plants: Atlanta, Ga., Gastonia, N. C. **Branch Offices:** Philadelphia, Dallas. **Canadian Agents:** Colwool Accessories, Ltd., Toronto 2



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Relativity? No . . . just the application of unceasing research into the new chemistry constantly developing . . . analysis of formulae to anticipate new textiles, new uses, new needs in color. These constitute the fourth dimensions of our efforts for you, for the dyestuffs of tomorrow.

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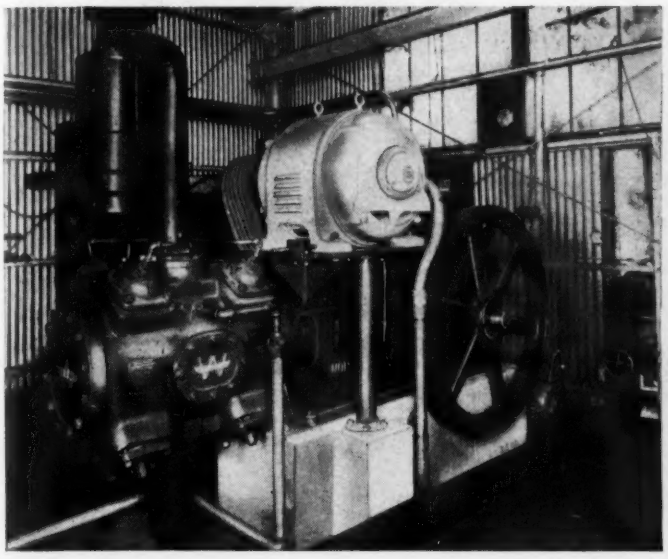
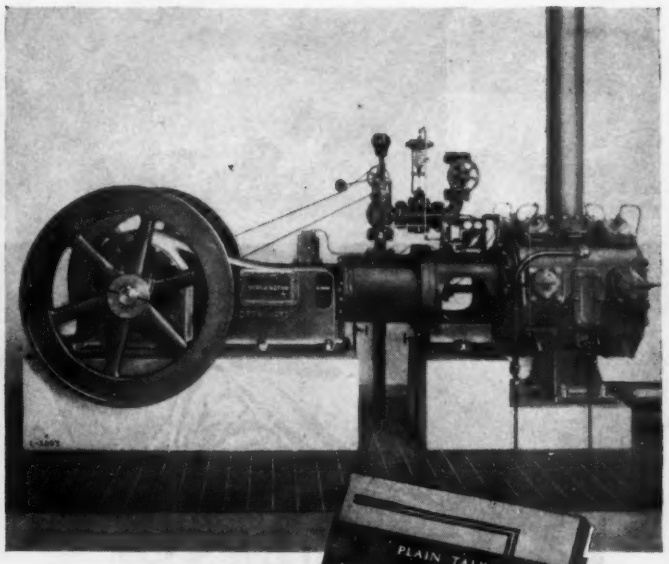
LET'S TALK PLAINLY...TOGETHER





That's How Worthington Engineers Make Better Compressors Serve You Better and Longer

"Plain Talks on Air and Gas Compressors" — a series of articles by Worthington engineers — will give you an idea of how thoroughly we are prepared to discuss with you the technical problems relating to your plant's present or future investment in compressors.

Volumetric efficiency . . . compression efficiency . . . mechanical efficiency . . . altitude and booster compressors . . . lubrication . . . multi-step controls . . . moisture separation . . . N-value and properties of various gases . . . are among the subjects discussed in these practical, factual engineering handbooks, illustrated by installation photos, machine cross-sections and charted data.

Worthington "Firsts" Advance Compressor Design

"Plain Talks" also illustrate the straight-forward engineering approach that has consistently advanced Worthington compressor design for more than 40 years.

For instance, consider the HB (motor-driven) and HS (steam-driven) single-cylinder, single-stage compressors shown above. 20 years ago, Worthington was *first* to use anti-friction roller bearings in horizontal compressors of this type . . . *first* also with Feather Valves*, lightest, tightest, quietest, most efficient valves ever designed for air or gas compression.

Automatic Operation

Operation is automatic. Just oil a Worthington Compressor and start it . . . you'll get automatic operation, requiring a minimum of attention.

To get this kind of long, trouble-free Compressor service, call in a Worthington engineer tc discuss *your* compressor needs. Write for "Plain Talks".

Worthington Pump and Machinery Corporation, Publications Department, Harrison, N. J.

WORTHINGTON *BEHIND THE NAME*

NO OTHER COMPRESSOR WILL OUTPERFORM A WORTHINGTON

AC4-15

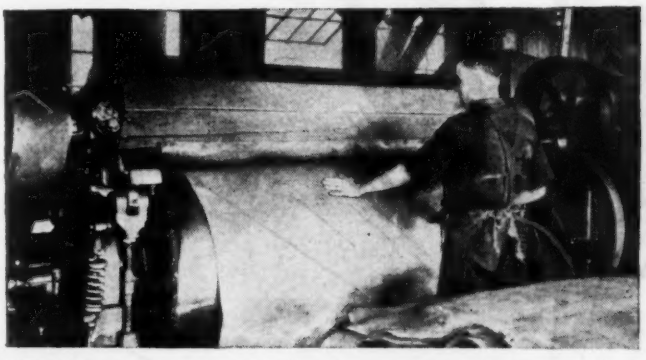
Y-types | Horizontal | Vertical | Radial | Portable | Gas Engine Compressors

With the dawn of Victory ~ planes and ships returning home—every American industry that has had a part in war production will have the deep satisfaction of having done a stupendous job well. We, who have turned our facilities into the making of essential war matériel, have learned lessons—have gained new and valuable ideas that will enable us to give greater services in the designing and building advanced finishing machinery for the textile industry.

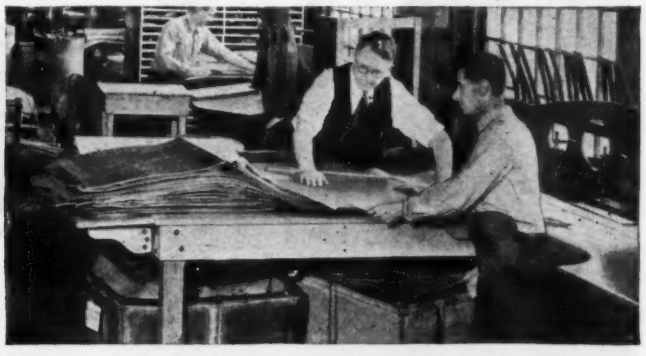
B. F. PERKINS & SON, Inc.
ENGINEERS AND MANUFACTURERS
HOLYOKE, MASS.

IN many a weave room today you can look up and down a row of looms and see plenty of orange color — pickers, check straps, lug straps and other leather products all colored alike — the distinctive orange which identifies Graton & Knight's "Hairitan" leather.

The WHY for all the *ORANGE* in the weave room



"Hairitan" is an exclusive tannage for loom services — giving you the greater resiliency and longer life which you demand for those services. Improvements made during the early part of the war have convinced users that "Hairitan" — with its great resiliency and high tensile strength — is at least the equal of any "European-type" hair-on leather.



You can depend upon uniformly high quality in "Hairitan" products because they have been tanned and finished *under one roof,* under one control of quality. Graton & Knight, making many types of industrial leather goods, can select for "Hairitan" the most suitable hides . . . and through every stage of manufacture, develops the qualities most desirable for your loom leathers.

The ORANGE LINE

One Quality Control from Hide to Loom

PICKMASTER PICKERS with the famous "Life Saver" hole

BLOCK PICKERS extra-resilient, cemented under pressure

"TWO-FOLD" CHECK STRAPS straight or endless

JACK & FLAT HARNESS STRAPS for heavy duty work

ROUND HARNESS & DOBBY STRAPS center-stock "Hairitan"

LUG STRAPS 4 or 5 ply folded, stitched; 2 or 3 ply, cemented

LUG HOLD-UP STRAPS . . . BUMPER OR SPINDLE STRAPS 1 or 2 ply

All "Hairitan" products are identified by orange color on the flesh side.

Graton & Knight also manufacture oak-tanned pickers, lug straps, bunters, box plate and binder leathers . . . "Research" rub roll aprons . . . G&K condenser tapes . . . G&K comber and gill box aprons . . . "Research" leather belting.

Make sure you are getting the best results from every one of your leather loom products. Send for valuable catalog on G&K leather products for textile mill uses. Also ask to receive, regularly, informative literature on loom leathers.

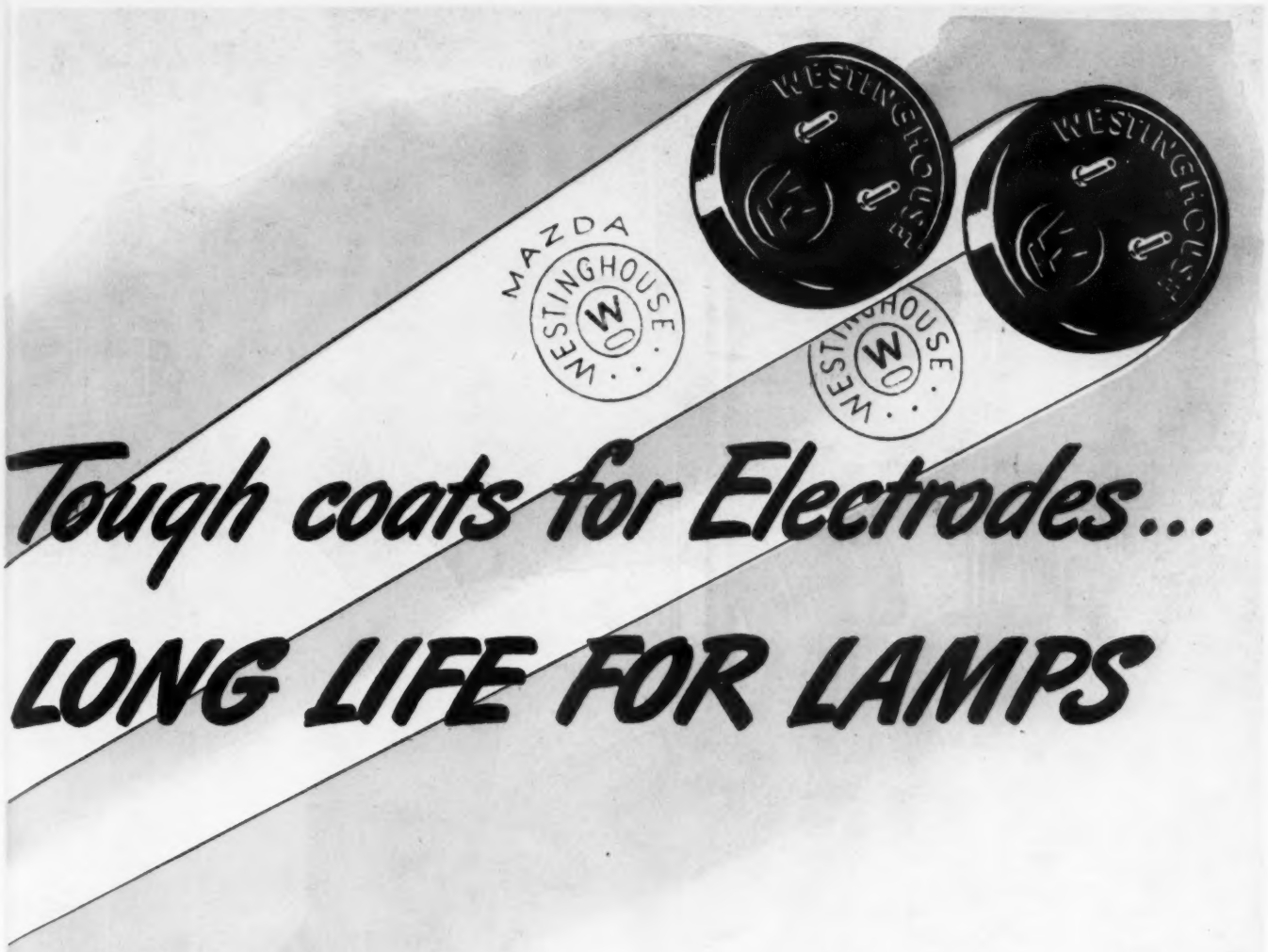
Address Graton & Knight Company, 326 Franklin Street, Worcester 4, Mass.

GRATON AND KNIGHT

ORANGE LINE LOOM LEATHERS

Supplied by the leading distributors to the textile industry . . . look under Graton & Knight in "Belting" section of Classified Telephone Directory or THOMAS' REGISTER. See complete catalog in TEXTILE WORLD YEAR BOOK.

WESTINGHOUSE PRESENTS JOHN CHARLES THOMAS • SUNDAY 2:30 EWT., N.B.C. ★ TED MALONE • MON., WED., FRI. 10:15 EWT., BLUE NETWORK



Tough coats for Electrodes...

LONG LIFE FOR LAMPS

Sealed in each end of a fluorescent lamp is a coil of finely drawn tungsten. These coils are coated with a special material which emits billions of electrons. The electrons bombard the mercury vapor . . . and also the coating on the coils.

How long and efficiently the coils will function depends on how well the coating withstands such bombardment.

Persistent Westinghouse research has developed an electronic emission coating of extraordinary efficiency. Not only does it supply a high quota of many billions of electrons per second, but it also is extremely tough, thus gaining capacity to stand up in service, giving hour after hour of efficient light.

And that is why, when you order fluorescent lamps, it pays to ask for Westinghouse. Your nearest Westinghouse dealer can now supply you. Westinghouse Electric & Manufacturing Co., Bloomfield, New Jersey.

HELP SHORTEN THE WAR . . . BUY MORE BONDS THAN BEFORE!

A Recent Installation of Four SARGENT STOCK DRYERS
in a Progressive New England Worsted Mill

A Production Problem Solved -

• • • THIS IS THE IMPORTANT FACT!

Advantages of this modern installation

— Stock dried at lower temperatures — The use of low pressure steam
— Lower power consumption — Less floor space required
— Costly repairs and breakdowns eliminated — A better product

Why not let SARGENT solve your Drying troubles ?

Important Defense Items by SARGENT	Machines for Smokeless Powder Plants • Machines for Synthetic Rubber Plants • Textile Machinery for the manufacture of uniforms • Machined parts for large caliber guns

C. G. SARGENT'S SONS CORPORATION

Graniteville, Massachusetts, U.S.A.

"I'M THE GAL WHO COULDN'T OIL A SEWING MACHINE!"

● *"But look at me now*—the handiest gal with a grease gun this side of Hoboken. My job is to see that a million dollars worth of machines run smooth and cool.

"My guy overseas would pass out if he could see me now—me that couldn't oil a sewing machine. But now the trickiest machine on my beat is an open book. All I had to do was learn one color symbol from another and I could do the job of an expert oiler. It took only a few hours because colors are easy for anyone."

How the New, Super-Safe Alemite

COLOROUTE

PLAN OF LUBRICATION

Protects Machines from Costly Human Error

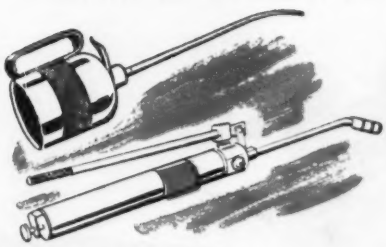
1. Coloroute is a "super-safe" plan for directing the proper selection and correct application of both lubricants and oils to every type of machine.

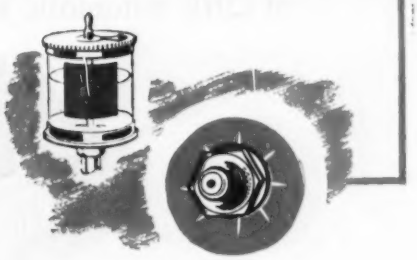
2. Coloroute was created to protect your machines from costly human error.

3. Coloroute covers not one, but all phases of lubrication—the greases and oils, equipment and method of application.

4. Coloroute is the natural outgrowth of Alemite's knowledge of lubrication gained through years of experience in every field.

5. No plant is too large or too small to enjoy the economies and benefits of COLOROUTE.





When installing Coloroute. Alemite Lubrication Specialists analyze your lubrication requirements to determine the minimum number necessary to do an efficient job. Then each container is given a color identification. This method often results in reduction of 30 to 75% in lubricant inventories.

Then, an analysis is made of lubricating equipment requirements to ascertain the *minimum* equipment needed to do the job *right*. Each gun or oil is color-identified so that the oiler can't mistake it. This helps prevent misapplication of lubricants and assures positive control of plant-wise lubricating schedules.

Each lubrication point is carefully checked and given its prescribed color identification. The color tells which "lube"—the shape of the symbol tells "how often." Containers, equipment lubrication points are color-keyed to each other. Inexperienced help can be quickly trained to be expert oilers in hours.

Finally, Alemite Lubrication Specialists prescribe and supply colored symbols and supervise their installation on every type of container, equipment and machine in your plant. The result is consistent, accurate routing of lubricants from "barrel to bearing." The right lubricant goes into the right place at the correct intervals of time from the proper lubricating equipment.

Another Product of STEWART WARNER

Write, Wire or Phone for Complete Information on Coloroute

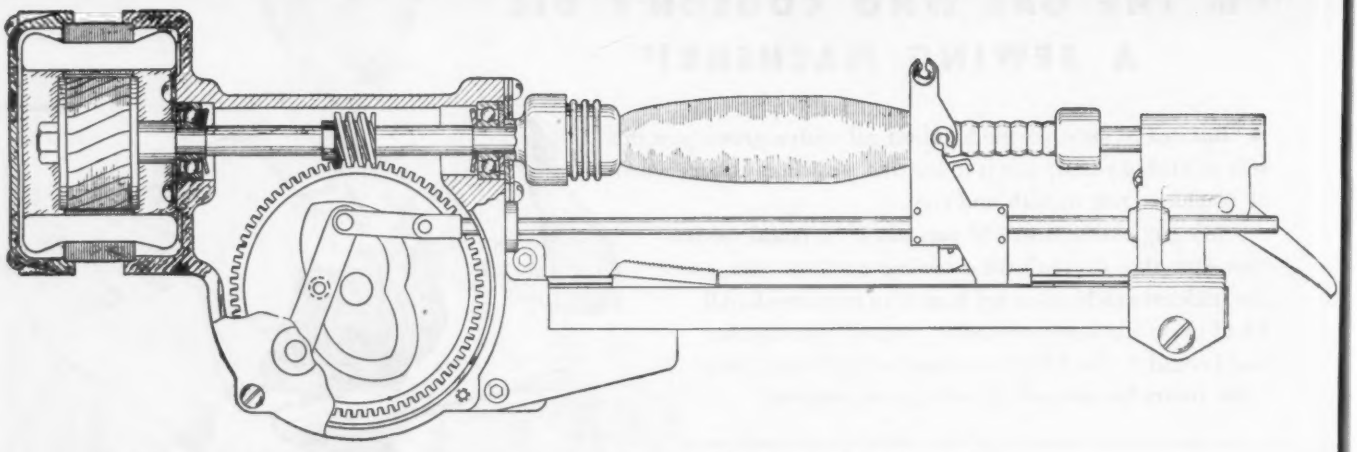
ALEMITE

First in Modern Lubrication

CONSULTATION • EQUIPMENT • LUBRICANTS
ENGINEERING • MAINTENANCE

1888 Diversey Parkway, Chicago 14, Illinois
In Canada: Belleville, Ontario

ABBOTT AUTOMATIC QUILLER



A low voltage three phase motor drives the spindle directly

Detectors stop motor when bobbin is full or thread breaks

Double-throw cam gives overlapping layers of wind

Greatly improved weaving results

Diameter and shape of bobbin easily and accurately controlled by feeler working against a stationary rack

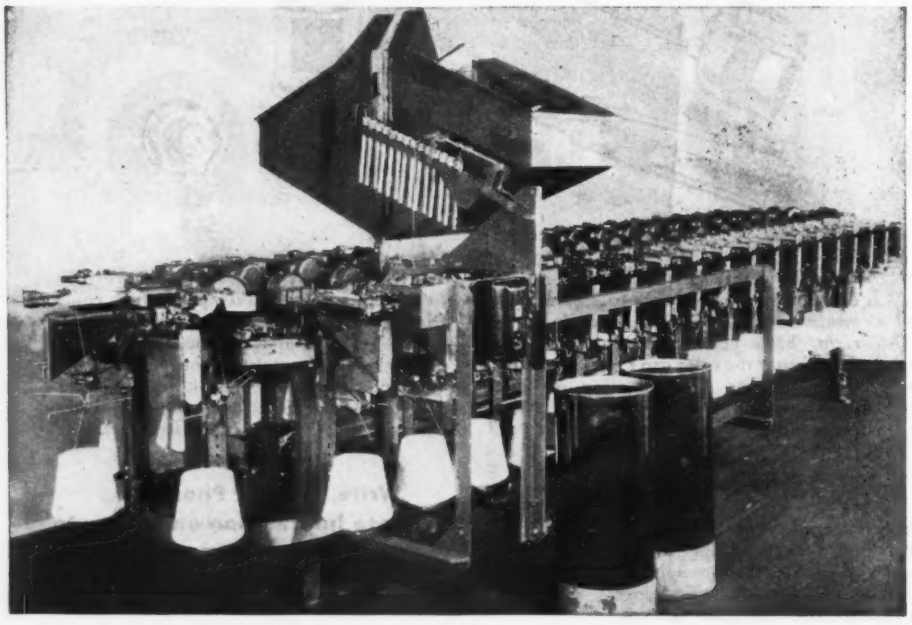
Bunch is controlled by making one adjustment instead of adjusting all winding units.

Spindle speeds up to 5,000 RPM

Winds cotton, worsted, woolen, silk, rayon, etc.

Empty bobbins poured into one large hopper and are sorted and fed automatically

Low investment cost due to simple construction of winding units and use of ONE automatic head to serve all spindles



PRODUCTION:

2,000 bobbins per hou
by one operator

ABBOTT MACHINE COMPANY

WILTON, N. H.

Southern Representative. L. S. Ligon. Greenville. S. C.

"WE LOOK FOR

Fine, Uniform Texture

IN KNITTING"

SAYS MISS FREDA FLEER, BUYER OF HOSIERY AND KNITTED UNDERWEAR, GIMBEL BROTHERS, PHILADELPHIA

"Knitted hosiery is popular in my department for both children and older girls. I find that mothers, in particular, look for well known makes that are recognized for their fine quality, where proper yarns of the best grades have been used and knitted with a fine, uniform texture. This adds not only to the appearance but also to the wear and comfort of the hose, and I place great emphasis on it in my own selection of merchandise."

And to help manufacturers obtain this fine, uniform texture in their products, Torrington places great emphasis on the development of new and more accurate needle manufacturing methods. Torrington Needles are machine-engineered and machine-controlled to assure finer and more uniform finish, temper, strength and overall dimensions. That is one reason why you can depend upon them for smooth knitting and long service.

TORRINGTON

Latch Needles

THE TORRINGTON COMPANY

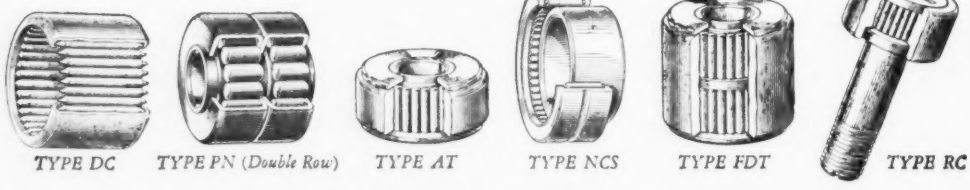
Torrington, Conn., U. S. A.

Established 1866

Branches: New York • Philadelphia • Chicago

Greensboro, N. C. • Boston • St. Louis • Toronto, Canada

How Needle Bearings Meet Modern Design Trends



TYPE DC *TYPE PN (Double Row)* *TYPE AT* *TYPE NCS* *TYPE FDT* *TYPE RC*

DEMANDS FOR HIGHER SPEEDS, LIGHTER WEIGHT, SIMPLER DESIGN, LONGER BEARING LIFE ALL MET BY ANTI-FRICTION TORRINGTON NEEDLE BEARINGS

•

The advantages of Torrington Needle Bearings in contributing to increased performance and operating efficiency of wartime equipment and materiel have demonstrated the opportunities they offer for design improvement in many peacetime products.

Speeds over 50,000 r.p.m.

One direction where Needle Bearings are being utilized with excellent results is in higher speed applications. Needle Bearings have operated experimentally at speeds as high as 60,000 r.p.m. In one aircraft application the regular DC Type Needle Bearing is operating at a speed of 20,000 r.p.m. In another rotating application utilizing seven DC Needle Bearings, operating speeds range from 7,000 to 14,000 r.p.m. under moderate to heavy load conditions.

Aid in Trend to Lighter Weight

Designs requiring weight reduction are frequently made possible through the use of Needle Bearings. The lighter weight of Needle Bearings themselves and the simplification of designs made possible by their compact size and high capacity both contribute to weight-saving designs.

And Longer Bearing Life

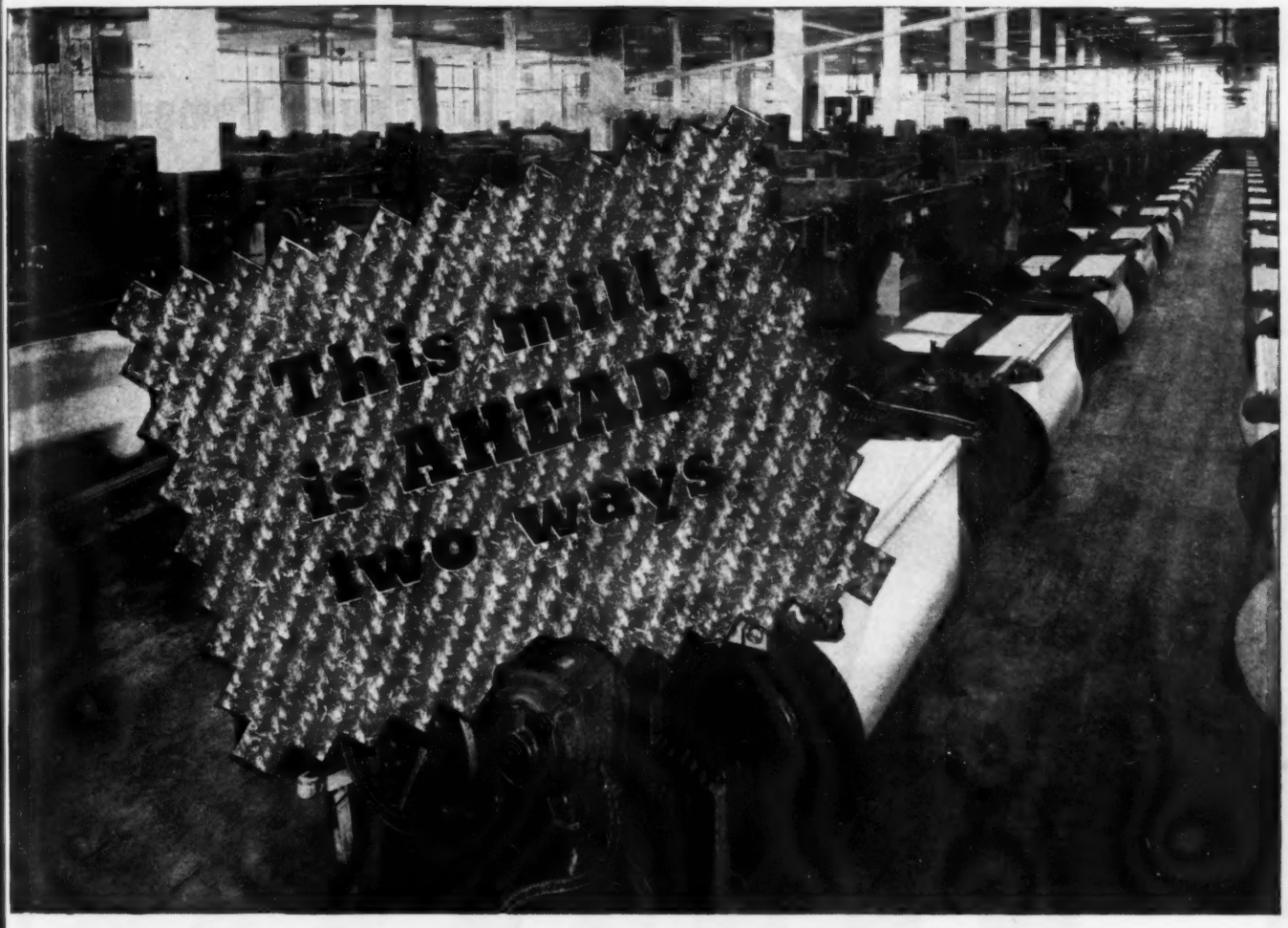
How Needle Bearings are contributing to increased efficiency and longer life is well illustrated in an application of two precision DC Type to the wrist pin end of the connecting rod in a portable gasoline engine. Designed for long periods of operation without servicing, it was found that anti-friction Needle Bearings doubled the service life. The basic design of all Needle Bearings aids in providing efficient lubrication, which is an important contributing factor in service life and in freedom from maintenance and repair.

Our engineering department will be glad to work with you in utilizing to the full all the advantages of Needle Bearings to your own design requirements and in recommending the type and size for any specific application. If you do not already have the Torrington Needle Bearing Catalog in your engineering files, send for your copy. It contains a wealth of data on these modern anti-friction bearings for modern design needs.

THE TORRINGTON COMPANY
Established 1866 • Torrington, Conn. • South Bend 21, Ind.
"Makers of Needle Bearings and Needle Bearing Rollers"

New York Boston Philadelphia
Detroit Cleveland Seattle
San Francisco Chicago Los Angeles
Toronto London, England

TORRINGTON
NEEDLE BEARINGS



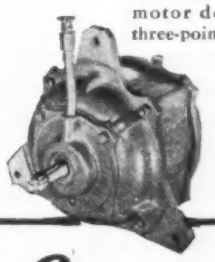
Under today's high-pressure production, reduced maintenance is an important factor—both from the standpoint of money saved as well as time saved. This is one way this mill is ahead. With Westinghouse loom motors on the job, maintenance is held at a minimum. These motors have been built to resist the heavy vibrations encountered in loom service. Mechanical strength is greater—life longer.

Power costs, too, are lower with Westinghouse Loom Motors. They are designed for exceptionally high efficiency. Proper relation of rotor weight helps "iron-out" some of the peak loads occurring at high frequency in loom drives. This results in greater overall efficiency and low power cost.

Plan now to use this motor on your new postwar looms. With its sturdy construction, you can be sure of meeting the heavy strains imposed by new looms before they are "broken in". Vibration can't "lick" this loom motor. Ask your Westinghouse representative to give you all the facts. Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa. J-94616

MANY ASSEMBLY COMBINATIONS

Westinghouse loom motors are particularly adaptable for special applications. There are many possible variations in assembly arrangements including three-point suspension, left and right-hand applications, base mounted, and many others. They can be supplied for all types of special mountings or lubrication requirements.

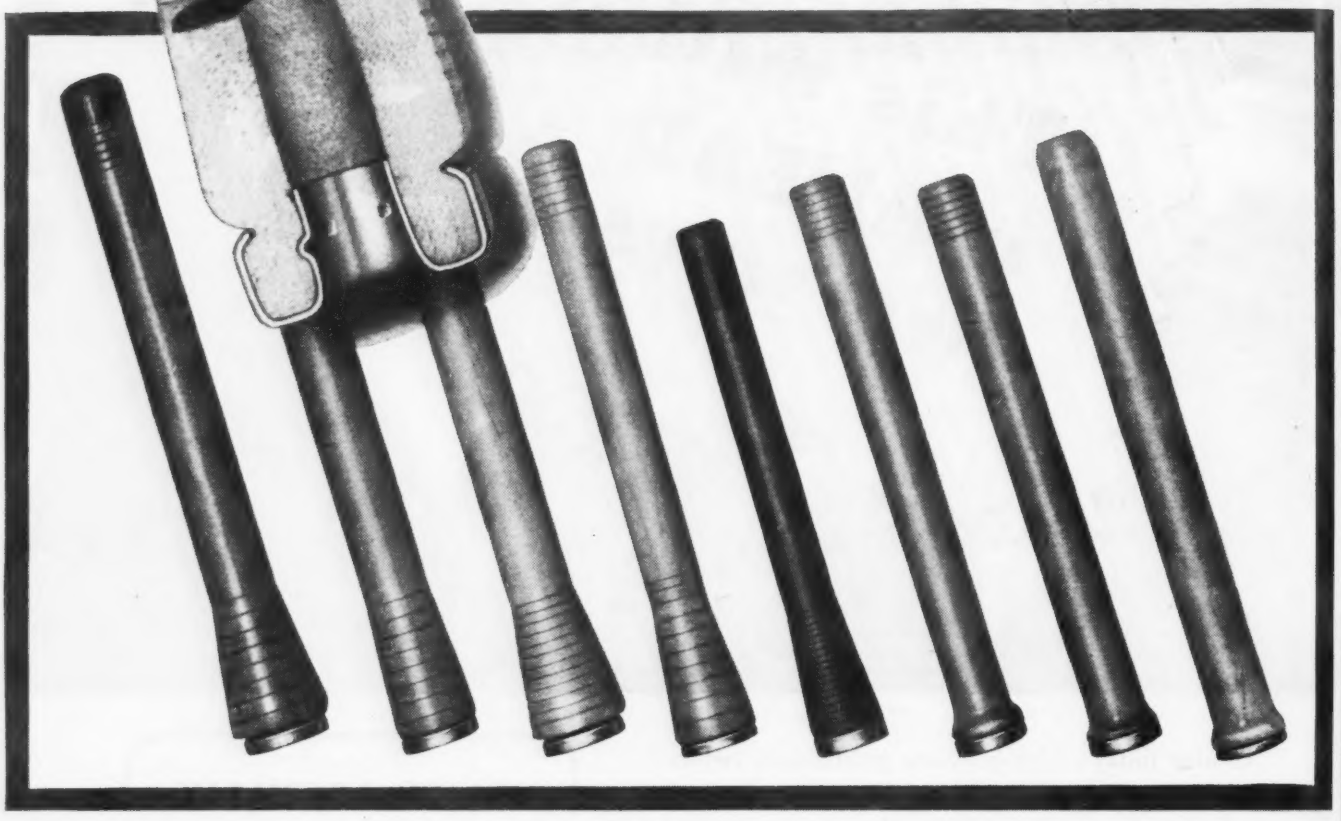


Westinghouse loom motor designed for three-point suspension.

Westinghouse
PLANTS IN 25 CITIES . . . OFFICES EVERYWHERE

Loom Motors

"Tool up" for Tough Competition with US WARP BOBBINS



The day will soon come when you will have to count on every bit of your mill equipment to help you keep costs in line with tough competition.

U S Warp Bobbins in any style will deliver top value in dependable service. But selecting bobbins with *extra* built-in endurance is a wise economy farsighted mill men won't overlook.

At slight extra initial cost, the U S Warp Bobbin with combination brass shield and bushing gives you year after year of trouble-free performance,—actually saves you money in the long run.

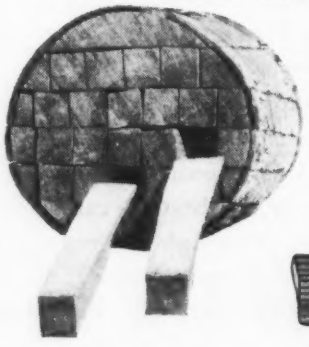
They resist the wear that eventually loosens unprotected bobbins and leads to vibration, and breakage, reduced production. They do not warp and "freeze" on spindles: reaming expense is avoided. The base, protected against splintering, splitting, and warping, always seats at the proper point on the spindle.

Higher spindle speeds and heavier packages will generate extra heat in already hot spinning rooms, another reason why you'll want these bobbins built to "take it".

Special combination bushings and shields on U S Warp Bobbins can be supplied for mills equipped with the Barber-Colman system of spooling and warping.

Talk to a U S representative about your warp bobbin requirements. He can show you just what you need—in Bobbins—and in Cones, Rolls, Shuttles, Spools, Tubes, or other U S products.

The "Split Stock" process makes U S Bobbins Smoother – Stronger – Better Balanced



Splitting the stock makes sure the bobbin is "centered on the grain" for turning. With sawed stock, cross grain often causes weakness, splintering, unbalance. Specify U S Bobbins for superior performance, longer service life.

U S BOBBIN & SHUTTLE CO.

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THE SEAL OF QUALITY AND SERVICE SINCE 1870 — US

Piping IS OUR BUSINESS!

When you need materials for any piping requirement, remember that dependable Grinnell piping products are available nearby. Grinnell maintains completely stocked warehouses in principal cities. From these warehouses or from your local Grinnell jobber you can get anything you need.

You can also get experienced advice from Grinnell Engineers on any unusual piping problem.

Send for catalogs, and call on Grinnell "whenever piping is involved".

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Executive Offices: Providence 1, R. I.

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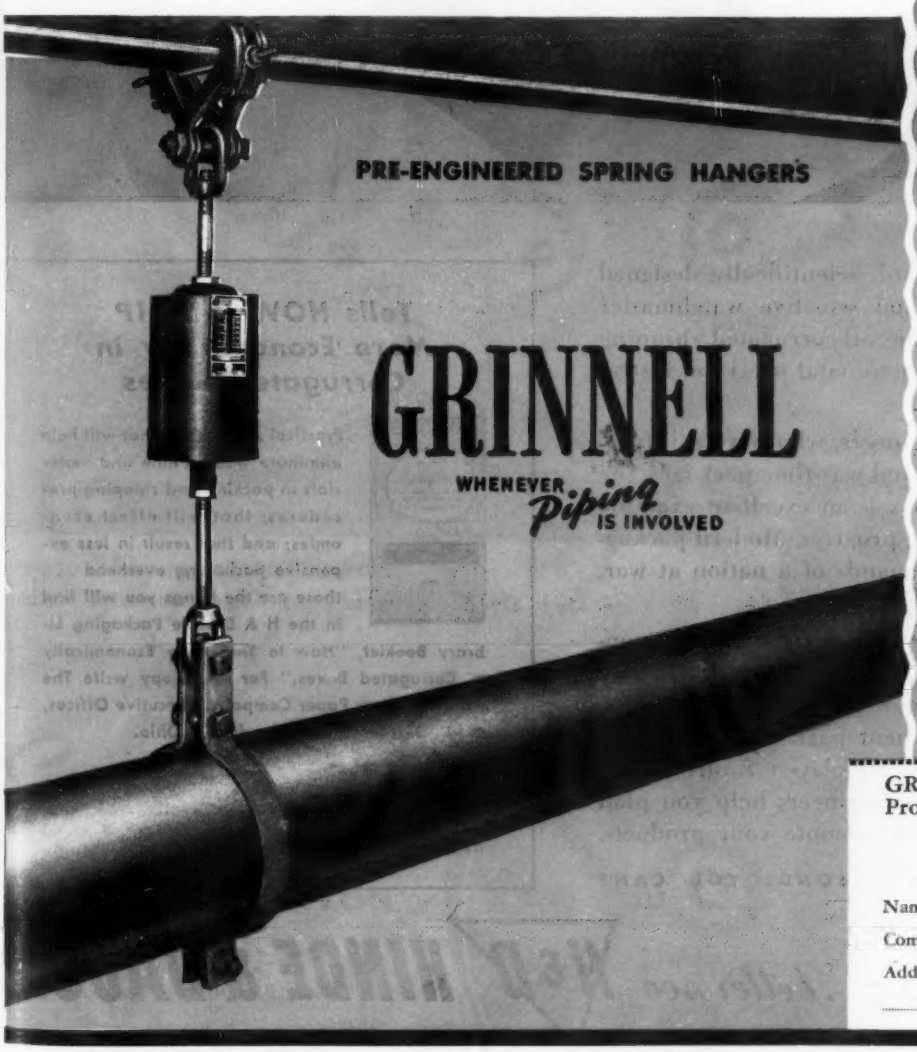
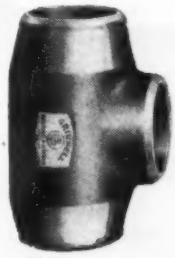
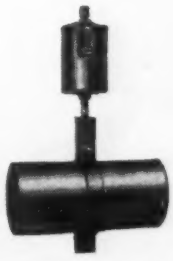


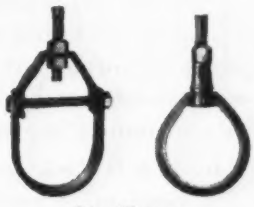
Cast Iron, Malleable Bronze and Steel, Pipe Fittings



Welding Fittings



Pre-Engineered Spring Hangers



Pipe Hangers

Also Pipe – Valves – Specialties for Heating, Water Works, Fire Protection and Pulp and Paper Mills.

GRINNELL COMPANY, INC.
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Please send copy of Catalog describing
Pipe Fittings....., Welding Fittings.....,
Pipe Hangers....., Spring Hangers.....

Name..... Title.....

Company.....

Address.....

To war in a cradle

An inner cradle of corrugated board, scientifically designed to support and protect delicate and sensitive watchmaster testing equipment, forms part of the all-corrugated shipping box that so dependably transports these vital precision instruments to the war fronts of the world.

Designed by H & D Package Engineers, who have skillfully constructed so many other pre-war and war-time packages, the watchmaster testing set shipping box is an excellent example of the recent advances in packaging progress. Modern packaging has capably met the severe demands of a nation at war, and now . . .

H & D packaging experts—engineers, designers, color consultants—are ready to help you plan for your future packaging requirements; ready to show you new designs and packaging techniques that will play a prominent part in the shipping boxes for after-Victory use. Insure undelayed future action by acting *now*—let H & D Package Engineers help you plan packages now that will protect and promote your products.

ARE YOU BUYING ALL THE WAR BONDS YOU CAN?

Tells HOW to SHIP More Economically in Corrugated Boxes

Practical suggestions that will help eliminate wasted time and materials in packing and shipping procedures; that will effect economies; and that result in less expensive packaging overhead . . . these are the things you will find in the H & D Little Packaging Library Booklet, "How to Ship More Economically in Corrugated Boxes." For your copy write The Hinde & Dauch Paper Company, Executive Offices, 4430 Decatur Street, Sandusky, Ohio.

• • •

FACTORIES in Baltimore • Boston • Buffalo Chicago • Cleveland • Detroit • Gloucester, N. J. Hoboken • Kansas City • Lenoir, N. C. • Montreal Richmond • St. Louis • Sandusky, Ohio • Toronto

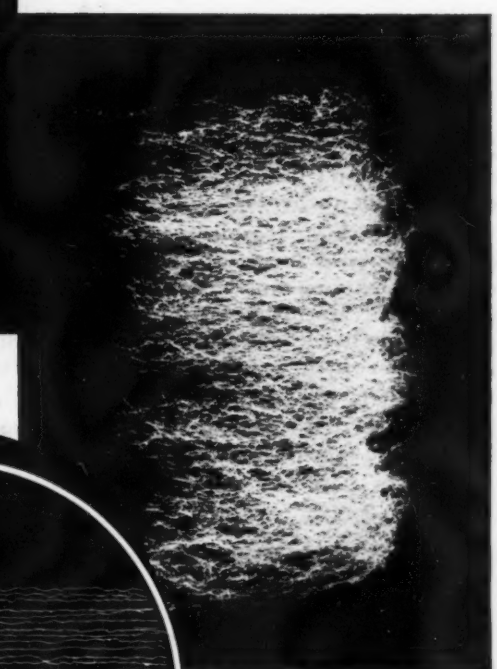
For postwar packaging . . better see **H&D HINDE & DAUCH**

AUTHORITY ON PACKAGING . . . CORRUGATED SHIPPING BOXES

he TECA* draw is a test of all three

- ✓ **uniformity of fiber length**
- ✓ **evenness of fiber diameter**
- ✓ **resilient action of TECA *crimp***

Textile men judge TECA by the evidence at their finger tips. Hand stapling tells them that here is a fiber meeting strict standards of uniformity ...a soft, scrupulously clean fiber that adds richness of texture, builds in resistance to crushing and sagging. These characteristics, plus Teca's crimp, result in a superior performance on any spinning system—cotton, rayon, wool or worsted.



eca draw to determine uniform fiber length.
ntermediate Teca draw, separating and evening layers of staple.

Dense specimen obtained from completed Teca draw, showing average relaxed Teca fiber length.

Left Thin layer of stapled Teca specimen, magnified two diameters, showing evenness and crimp.

*Eastman

IMPED ACETATE RAYON

further information about Teca, consult M. Tenney Associates, Inc., 10 East 40th et, New York 16, N. Y., sales representa- s for the Tennessee Eastman Corporation, sidiary of the Eastman Kodak Company

Who's Going to Make a Mistake Here?

Not the man who has the clear, concise instruction sheet. But don't put the blame on the other fellow, either . . . put it where it belongs—on the record form!

And furnishing legible records is the job Uarco **continuous-strip** forms do. With a Uarco Register, one person at one time writes enough copies for your every need . . . furnishes "originals" for all interested parties. These records put an end to excessive copying and re-copying . . . lessen the possibility of errors.

But that is only one of the jobs Uarco does for business record keeping. These **continuous-strip** forms speed the flow of work smoothly, efficiently . . . end carbon fuss, stop-and-go actions, and other time-wasting operations. Uarco records are made either for handwritten or machine-written use. They may be carbon interleaved or non-interleaved; may be used in a Uarco Autographic Register, typewriter, billing or tabulating machine.

No matter what type of record keeping problem you have, Uarco has or will devise a form to fit your individual need. It will cost you nothing to have a Uarco representative call today.

UNITED AUTOGRAPHIC REGISTER COMPANY
Chicago, Cleveland, Oakland • *Offices in All Principal Cities*

AUTOGRAPHIC REGISTERS

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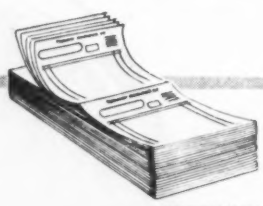
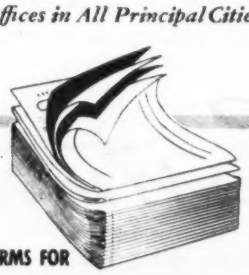
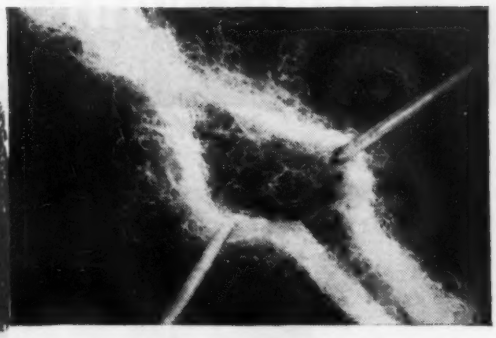




CONTINUOUS-STRIP FORMS FOR HANDWRITTEN • TYPEWRITTEN • BUSINESS MACHINE RECORDS

UARCO

BETTER BUSINESS RECORDS



Strands of untreated wool yarn (shown highly magnified at top) intertwine and felt when laundered. LANASET treated yarn (shown below) retains its original shape and appearance.

"And to think, that dress was once my size!"

Originally, these two dresses were the same size. They were made of the same material — but with one important difference. The wool in one was treated with LANASET*— the new melamine resin for wool shrinkage control. When subjected to severe laundering the dress held its shape, retained its original size and appearance. The untreated wool shrank, felted, changed completely in texture and looks.

The treatment with LANASET stabilizes each individual wool fiber and thereby controls shrinking and felting without in any way detracting from the wear, feel or other desirable qualities of the wool.

LANASET is immediately available to mills and finishers for full-scale runs in processing wool and blends of wool and rayon. Ask your Calco representative for full details on LANASET for shrinkage control.

*LANASET is the trade-mark of American Cyanamid Company applied to melamine resins of its manufacture for use in wool shrinkage control.

Calco

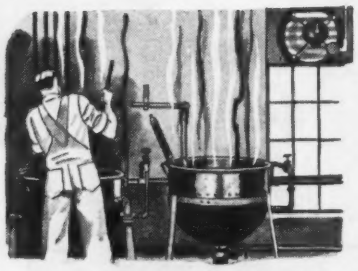
CALCO CHEMICAL DIVISION • AMERICAN CYANAMID COMPANY

BOUND BROOK, NEW JERSEY

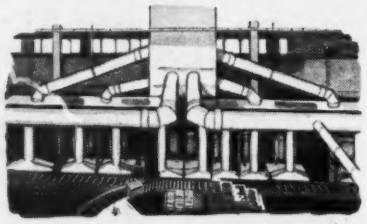
NEW YORK BOSTON PHILADELPHIA PROVIDENCE CHARLOTTE CHICAGO

It pays to be "Nosey" about your Plant Air!

1. IF THERE ARE ANY innocent-looking vapors hanging around your plant—it will pay you to take another look at them. They may be costing you money. Smoke, steam and fumes have a way of slowing down workers . . . corroding equipment and even affecting the quality of finished products.

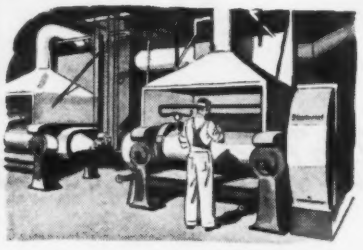


2. BUT REMEMBER, there's a lot more to fume control than just slapping a fan in the wall to exhaust air outside. The trick is to pick up fumes at the source—as soon as they are released—and to do it with minimum heat loss and operating expense.



3. FIRST STEP then, is installation analysis. One process may call for a single fan drawing through a system of ducts. Another set-up may call for an individual fan unit for each hood. In either case, provision for replacement air must be studied.

4. HOOD DESIGN comes next. Hoods should be placed as close as possible to the source without inconveniencing workers or hindering the process. And if hoods must be elevated, Sturtevant Engineers have worked out the exact degree of increase in hood size required for maximum efficiency.



5. IF FUMES are corrosive or toxic, care must be taken to prevent leakage in the system and corrosion of the fan and other equipment. Valuable elements in your fumes can be reclaimed handily. One Sturtevant System collects gasoline vapor from process with the result that 60% is recovered.

6. TO GET RID of fumes effectively—at lowest cost—equipment must be geared to *your* processing, designed by men who know all the ins and outs of fume control. Sturtevant Engineers—with experience in hundreds of fields, with all types of equipment to draw on—can give you unbiased recommendations.

Set your sights—*NOW* to forge ahead on conversion day

SOLID PRODUCTION GAINS will fall to manufacturers who plan now with Sturtevant for better fume exhaust after Victory. Elimination of employee health menace . . . more efficient workers and working conditions . . . equipment protected against corrosion . . . these results of engineered air are bound to strengthen your competitive position. Have your post-war planning committee get Sturtevant recommendations now—for "Putting Air to Work" in your plant on V-day.

B. F. STURTEVANT COMPANY • *Hyde Park, Boston 36, Mass.*

Sturtevant
REG. U. S. PAT. OFF.
Puts Air to Work

SYSTEMS and EQUIPMENT
Engineered for Efficiency in

Heating
Ventilating
Air Conditioning
Dust and Fume Control
Pneumatic Conveying
Vacuum Cleaning
Mechanical Draft

Naphtols

FAST COLOR SALTS AND BASES

For color range . . brilliancy . . excellent fastness properties . . high yield . . low cost . . flexibility of application and economical production NAPHTOLS are unchallenged in their field.

GENERAL DYESTUFF CORPORATION

435 HUDSON STREET • NEW YORK 14, N. Y.

BOSTON • PROVIDENCE • PHILADELPHIA • CHICAGO • CHARLOTTE • SAN FRANCISCO

Confidence —

Manufacturers may face the post-war adjustment period with greater confidence, if supported by the financial and credit services of a strong factoring organization.

Factoring enables a manufacturer to retain his own capital funds in his own business, instead of providing capital for the customers who buy his products; — at the same time factoring provides for such customers the usual credit terms on their purchases.

The factor assumes all risks of credit losses, and makes available immediately in cash, the net value of shipments as made.

Wider distribution and greater sales volume can be attained through factoring, without risk of credit losses, and on less invested capital.

INQUIRIES INVITED

John P. Maguire & Company

INCORPORATED

Factors

AShland 4-4141

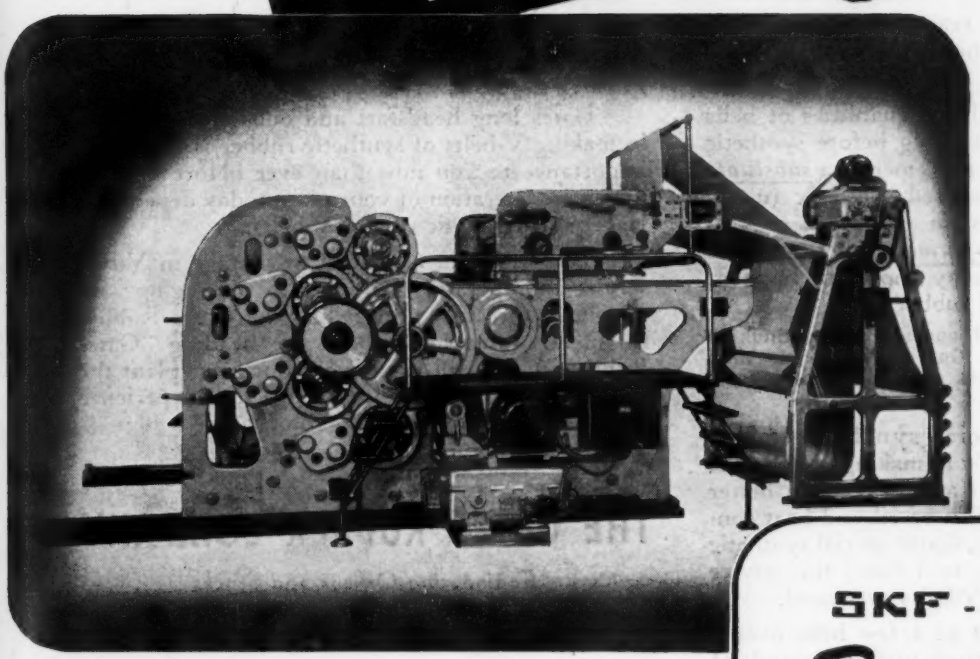
370 FOURTH AVENUE, NEW YORK, 10, N.Y.

BEARINGS *that*

HELP PRINT CLOTH BAGS

It's the same story wherever you go in the Textile Industry. When you see this Four-Color Automatic Cut, Print and Fold Machine in action, you notice the same smooth-running characteristics that are typical of SKF-equipped spinning and twisting frames, Sanforizers, calenders, dryers and many other machines. Designed for making and printing cloth bags from the lightest cotton cloth up to the heaviest burlap, this machine has an inking mechanism and inking rollers that depend upon SKF Bearings. This assures free running at all times and prevents dragging over printing plates which causes smudging and offsetting of printed bags. Another example where SKF performance is the thing that counts. 5676

SKF INDUSTRIES, INC., PHILADELPHIA 34, PA.

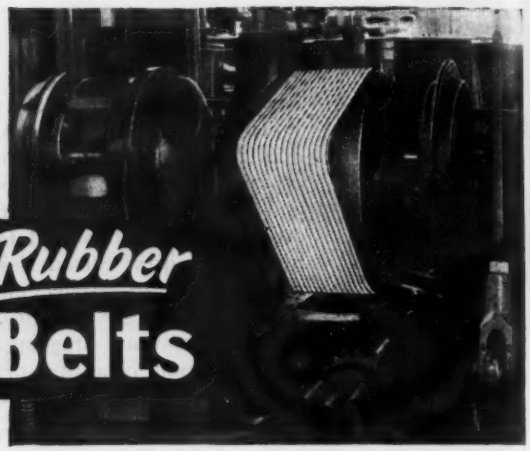


SKF - EQUIPPED

Bag Making Machine

Built by Schmutz Mfg. Co., Inc.

ONE EXAMPLE: On this drive, operating conditions gave the belts a severe soaking with oil. Gates special synthetic V-belts were installed. They are giving more than twice the service life of any belts previously used.



In Hundreds of Plants—

GATES Synthetic Rubber V-Belts

Are OUTWEARING Any NATURAL RUBBER V-BELTS Ever Used!

Now that every V-Drive in your plant depends upon belts made of synthetic rubber it pays to know that Gates Synthetic Rubber V-belts have been in nation-wide use for *more than 6 years*—and through all that time they have been giving service actually superior to belts of *natural rubber!*

There is naturally a reason for this marked superiority of Gates synthetic rubber belts—and here it is:

Gates began making large quantities of belts entirely of synthetic rubber long before synthetic rubber came to be thought of as merely a *substitute* for natural rubber. Gates used synthetic rubber not as a substitute but as an *improvement*— in fact, Gates chose a very *special* synthetic for the one reason that it is, in many important respects, *greatly superior* to natural rubber.

*There are, of course, many kinds of synthetic rubber. Gates uses each kind where it best meets some particular service need.

For Example:—One special synthetic rubber which Gates uses extensively in making V-belts has the ability to withstand oil and heat much better than natural rubber can. Where oil and heat conditions are especially severe, Gates special synthetic V-belts are giving 3 times to 4 times the service life of any natural rubber V-belts ever used.

This is the record not of a few belts over a limited period but of thousands upon thousands of Gates synthetic rubber V-belts installed in hundreds of plants and factories during the past 6 years.

Gates long headstart and outstanding success in making V-belts of synthetic rubber is of greater importance to you now than ever before because the entire operation of your plant today depends so largely on synthetic rubber V-belts.

You will gain a distinct advantage in V-belt service and operating efficiency by picking up your telephone directory and calling the Gates Rubber Engineer. (Just look under the heading "Gates Rubber.") He will bring right into your plant the full benefits of Gates' knowledge and experience —without the slightest obligation.

THE GATES RUBBER COMPANY

Engineering Offices and Stocks in All Large Industrial Centers

4411

GATES VULCO ROPE DRIVES

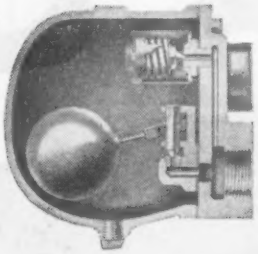
CHICAGO, ILL. 549 West Washington
DALLAS, TEXAS 2213 Griffin Street
NEW YORK CITY 215-219 Fourth Avenue
BIRMINGHAM, ALA. 801-2 Liberty National Life Building
DENVER, COLO. 999 South Broadway
CHARLOTTE, N. CAROLINA 605 West Fifth Street
GREENVILLE, S. CAROLINA 108 W. Washington Street
ATLANTA, GA. 738 C & S National Bank Building

IT'S NEVER TOO HOT

OR TOO COLD *with Sarco!*

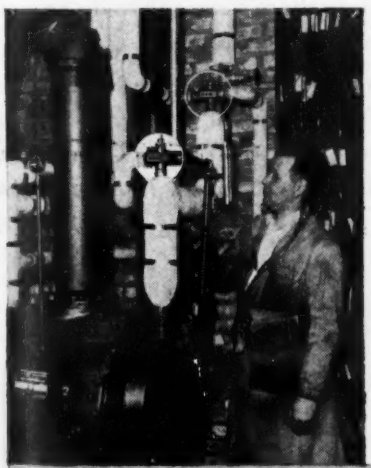
Uneven temperatures of steam equipment mean irregularities in production, slow-ups, second grades. Higher fuel, water and labor costs are the results.

Sarco holds temperature day in and day out. Sarco users "Set it and forget it" and say that it's "never too hot or too cold."

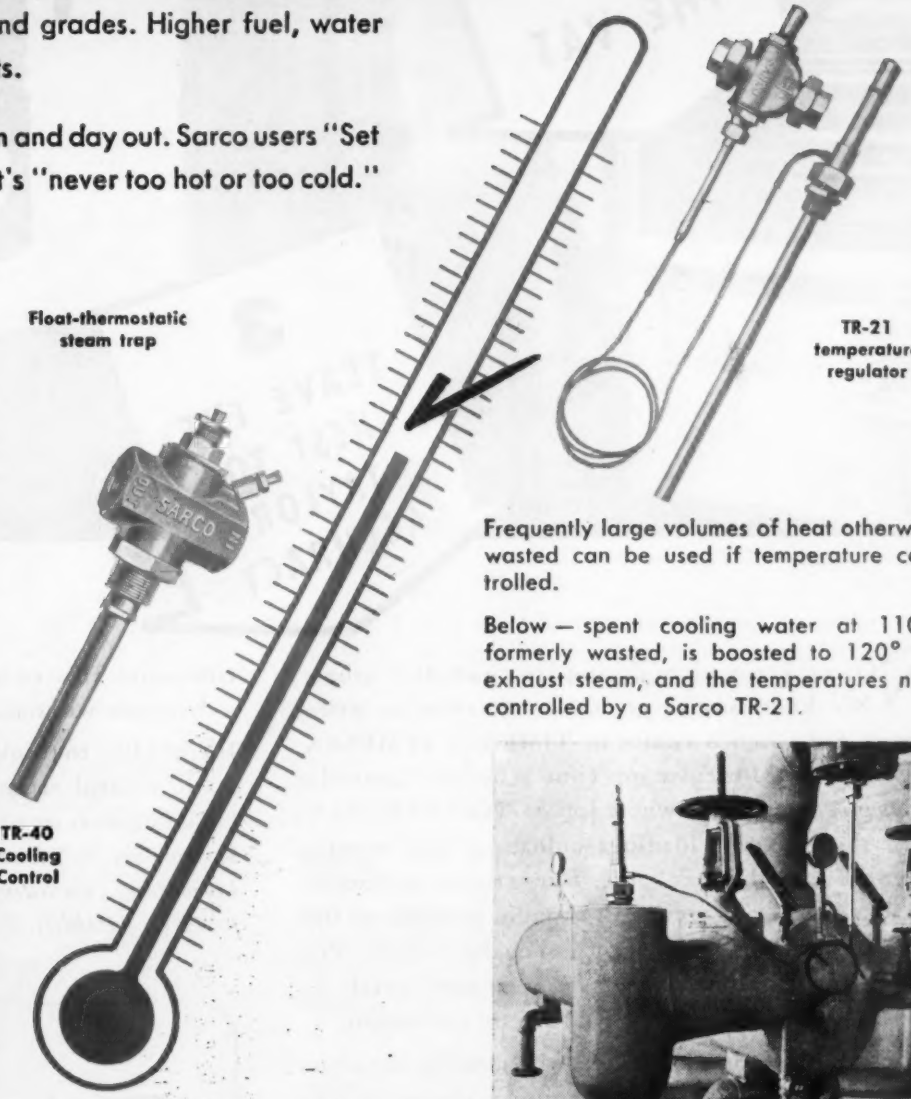


Float-thermostatic steam trap

Compressor cooling water temperature controlled by a Sarco TR-40. The results: Increased engine efficiency, less cooling water used, overflow used in wash tanks. The cost — negligible.



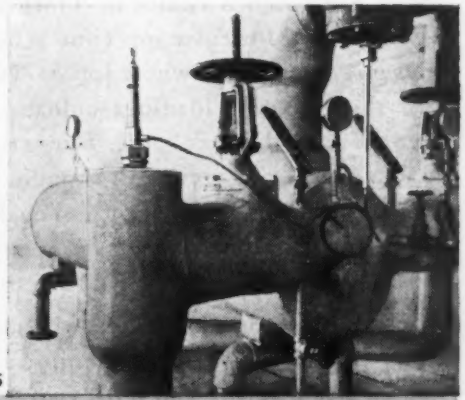
TR-40 Cooling Control



TR-21 temperature regulator

Frequently large volumes of heat otherwise wasted can be used if temperature controlled.

Below — spent cooling water at 110°, formerly wasted, is boosted to 120° by exhaust steam, and the temperatures now controlled by a Sarco TR-21.



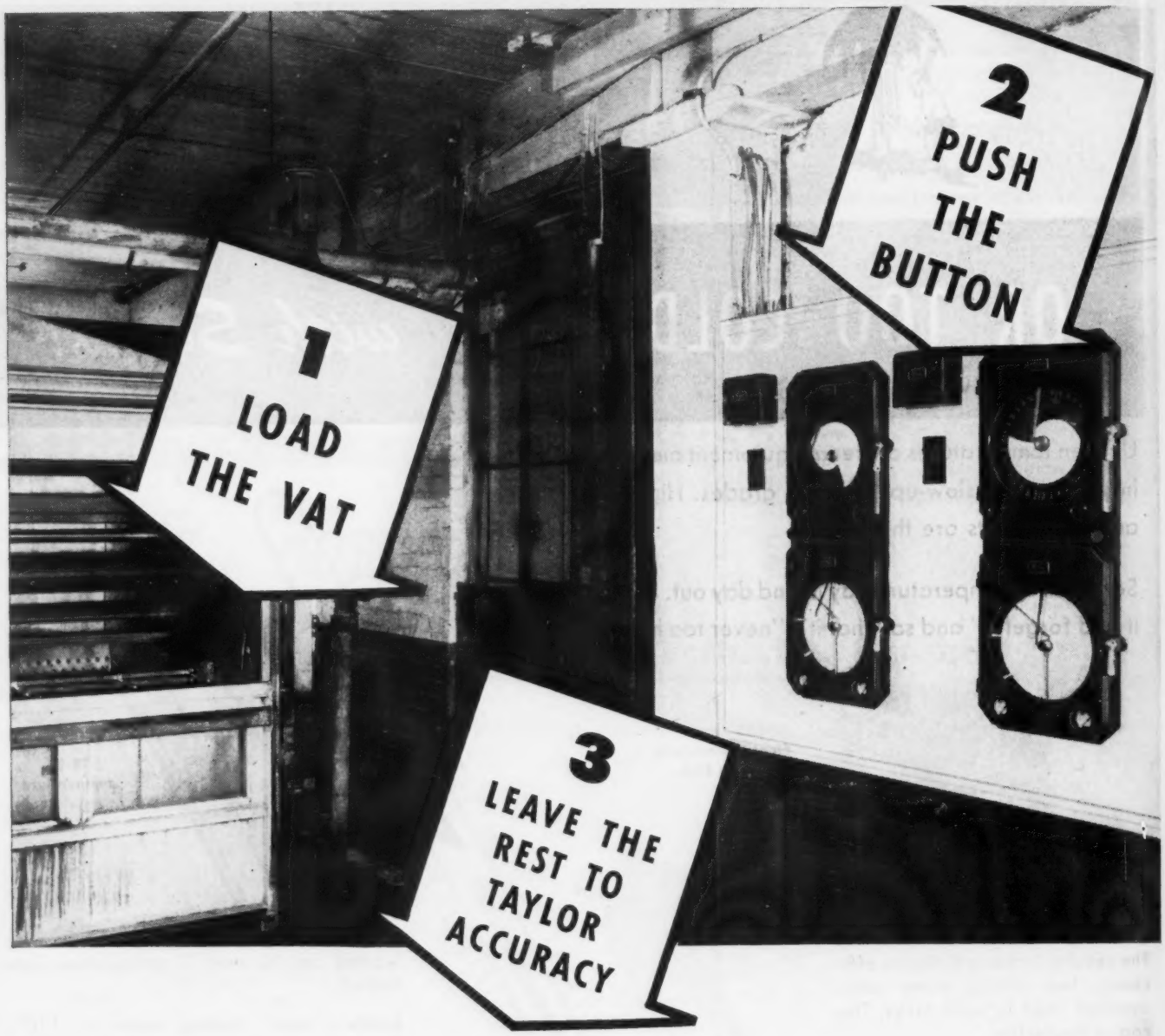
.46

SARCO COMPANY, INC.
475 FIFTH AVENUE
NEW YORK 17, N. Y.

Represented in Principal Cities

SARCO Saves Steam

SARCO CANADA, LTD., 85 Richmond Street, West, TORONTO, ONTARIO



NO, we know piece dyeing isn't *quite* this simple. We know you've got other variables to worry about. But when it comes to TIME and TEMPERATURE the Taylor Fulscope Time Schedule Controller does mighty near the whole job AUTOMATICALLY. Everything except loading, unloading and starting over again on the next batch. Temperature is controlled to a degree not previously thought possible on this type of machine, and timing is equally precise. You can change the timing *with the same cam* merely by speeding up or slowing down the cam movement.

A Time Schedule Controller will actually save you money by giving you more uniform shades, a substantial steam saving and most economical use of dye stuff. It saves labor by doing the job *better* than any man could and releasing operators for more important duties. Heaven knows there's enough to do around a dyehouse without *borrowing* trouble!

If you'd like to think about this flexible, practical automatic control setup for *your* plant, call your Taylor Field Engineer or write Taylor Instrument Companies, Rochester, N. Y., or Toronto, Canada. *Instruments for indicating, recording, and controlling temperature, pressure, humidity, flow and liquid level.*

ARMY E NAVY

Taylor Instruments

MEAN

ACCURACY FIRST

IN HOME AND INDUSTRY

★ KEEP ON BUYING U. S. WAR BONDS AND STAMPS ★

AMERICA'S WOMEN ANSWER THE CALL...

Nearly 850,000 Spin and Weave for Victory

ALWAYS the spinners and weavers of the race, women today make up two-thirds of America's "manpower" in the world's oldest industry...Women are contributing to the miracle of textile production to provide more than 300 different military fabrics for our 8-million army already on 60 battlefronts.

Here at STANDARD we are proud to be a part of this great industry and pledge ourselves daily to keep production and bond buying at peak so that we may help advance Victory's time-table.

BRANCH OFFICES:
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Chicago 54, Ill.—940 Merchandise Mart
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STANDARD DURENE • SELO • PREEMO
COMBED SAKS • COMBED PEELERS • THREADS

STANDARD-COOSA-THATCHER CO.

CHATTANOOGA 1, TENNESSEE • Sales Offices: 804-6 Lafayette Building, Philadelphia 6, Pa.
Representatives in principal Central and South American Countries

BETTER *Lubrication* Means Better Maintenance

Is difficult maintenance a problem? Maybe excessive wear due to inefficient lubrication is the cause. That's where Sinclair Lubricants can help.

Sinclair LILY WHITE OILS are non-gumming, non-sludging . . . assure cool operation and negligible drag at highest spindle needs. NO-DRIP LUBRICANTS resist throw even in worn comb boxes. BEARING GREASE AF for pressure-fitted bearings has the added advantages of color neutrality and water solubility.

• • •

(Write for "The Service Factor"—published periodically and devoted to the solution of lubricating problems.)

SINCLAIR TEXTILE LUBRICANTS

FOR FULL INFORMATION OR LUBRICATION COUNSEL WRITE SINCLAIR REFINING COMPANY, 630 FIFTH AVENUE, NEW YORK 20, N. Y.

Our Stock of Steel is Bigger...
Call us for Quick Service

UNITED STATES STEEL SUPPLY COMPANY
USS
STEELS
SERVICE

TODAY we have a wide variety of steel in stock available for quick shipment. A call to us may solve your problem—may avoid serious delays in vital war production. The chances are we have the kind of steel you want—either general purpose steels or the National Emergency Alloy Steels which, on many jobs, have proved as good or better than steels ordinarily used.

When you need steel, steel products, tools, equipment or machinery, get in touch with our nearest warehouse. Your orders or inquiries will receive courteous attention and quick action.

Send for FREE copy of our new Stock List and Reference Book

UNITED STATES STEEL SUPPLY COMPANY

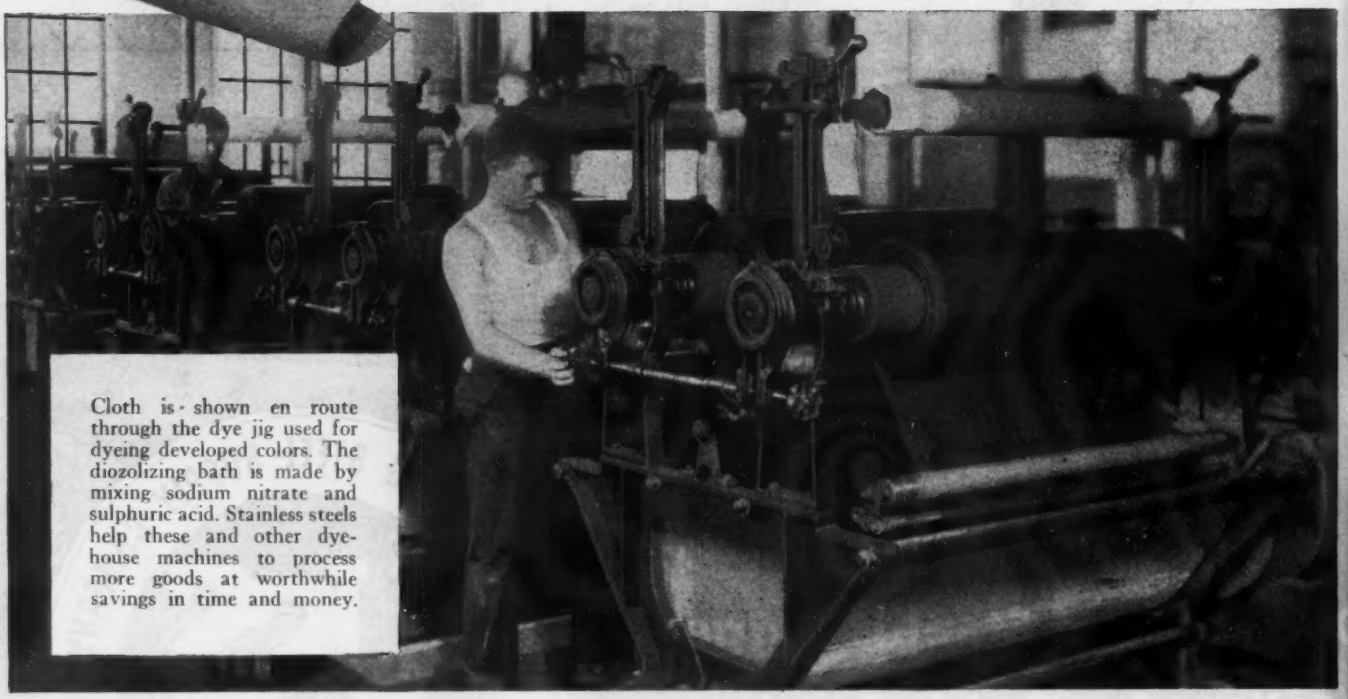
CHICAGO (90),	1319 Wabansia Ave., P. O. Box MM	Teletype CG. 605	BRunswick 2000
BALTIMORE (3),	Bush & Wicomico Sts., P. O. Box 2036	Teletype BA. 183	GILmore 3100
BOSTON (34),	176 Lincoln St., Allston, P. O. Box 42	Teletype BRTN. 10	STAdium 9400
CLEVELAND(14),	1394 E. 39th St.,	Teletype CV. 153	HEnderson 5750
MILWAUKEE (1),	4027 West Scott St., P. O. Box 2045	Teletype MI. 587	Mitchell 7500
NEWARK (1), N.J.,	Foot of Bessemer St., P.O. Box 479	Teletype NK. 74	Bigelow 3-5920
		REctor 2-6560 -	BErgen 3-1614
PITTSBURGH (12),	1281 Reedsdale St., N. S.	Teletype PG. 475	CEdar 7780
ST. LOUIS (3),	21st & Gratiot Sts., P. O. Box 27	Teletype SL. 384	MAin 5235
TWIN CITY,	2545 University Ave., St. Paul (4), Minn.	Teletype STP. 154	NEstor 2821

UNITED STATES STEEL

DYEING MORE CLOTH

of higher quality · in less time · at lower cost

WITH STAINLESS STEEL



Cloth is shown en route through the dye jig used for dyeing developed colors. The diozolizing bath is made by mixing sodium nitrate and sulphuric acid. Stainless steels help these and other dye-house machines to process more goods at worthwhile savings in time and money.

UNDER the pressure of peak production, dye-house equipment must be pushed to the limit to meet today's requirements. With ordinary equipment you can't maintain quality and quantity standards, fight rust stains, bleeding and other causes of spoiled cloth. That is why stainless steel equipment is so widely used in the up-to-date, efficient dye-house.

Stainless Steel is impervious to the corrosive elements in dye liquor. It also prevents metallic contamination of the liquor. The result is longer runs of bright, uniformly true color — quicker color changes without long delays for cleaning—no danger of "canker" or copper sulphide stains.

Dye-house equipment made of U·S·S Stainless Steel actually stabilizes the dye bath, can be pushed beyond ordinary limits without too frequent repairs or maintenance, lasts so long in service, prevents so much spoilage, saves so much labor cost, that it practically pays for itself.

Wherever wet metal touches cloth, in tanks, tubs, rolls, size pans, kiers, jigs and dry cans—in agitators, piping, washing and sizing machines—equipment made of inert, immaculate, U·S·S Stainless Steel speeds up the work, cuts down cleaning time and materials, stands up under high pressures and temperatures — *indefinitely*.

Before you make necessary replacements or order new dye-house equipment, be sure to consult our technical staff. They will be glad to advise you—and your chosen fabricator of equipment—on the various grades of U·S·S Stainless Steel which are especially designed to meet your individual requirements.

USS

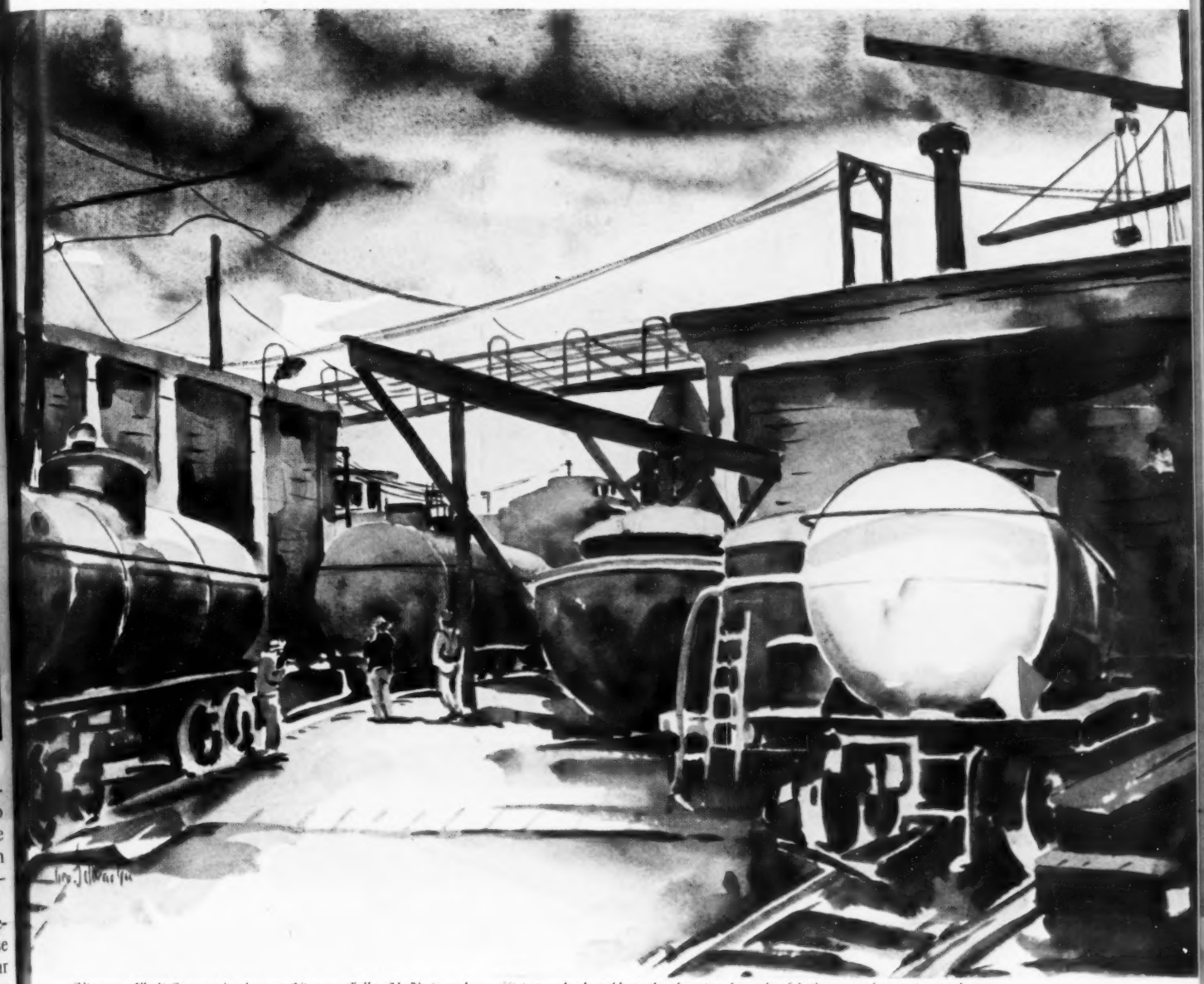
UNITED STATES STEEL

U·S·S STAINLESS STEEL

SHEETS · STRIP · PLATES · BARS · BILLETS · PIPE · TUBES · WIRE · SPECIAL SECTIONS

AMERICAN STEEL & WIRE COMPANY, *Cleveland, Chicago and New York*
CARNEGIE-ILLINOIS STEEL CORPORATION, *Pittsburgh and Chicago*
COLUMBIA STEEL COMPANY, *San Francisco*
NATIONAL TUBE COMPANY, *Pittsburgh*
United States Steel Supply Company, Chicago, *Warehouse Distributors*
United States Steel Export Company, New York

For a New Era...



Niagara Alkali Company's plant at Niagara Falls, N. Y., is modern, efficient and adaptable to the changing demands of both war and peacetime production

A THIRD of a century of pioneering experience in the manufacture of electro-chemical products has enabled Niagara Alkali to adjust and expand quickly and efficiently to the vast demands of war. And this same experience will serve in good stead when the time comes to apply the new war-inspired uses for these products to the expanding needs of the coming postwar era. In your plans for tomorrow you can rely on the proven quality of Niagara products and the skillful cooperation of Niagara's technical and research service.

Niagara ALKALI COMPANY

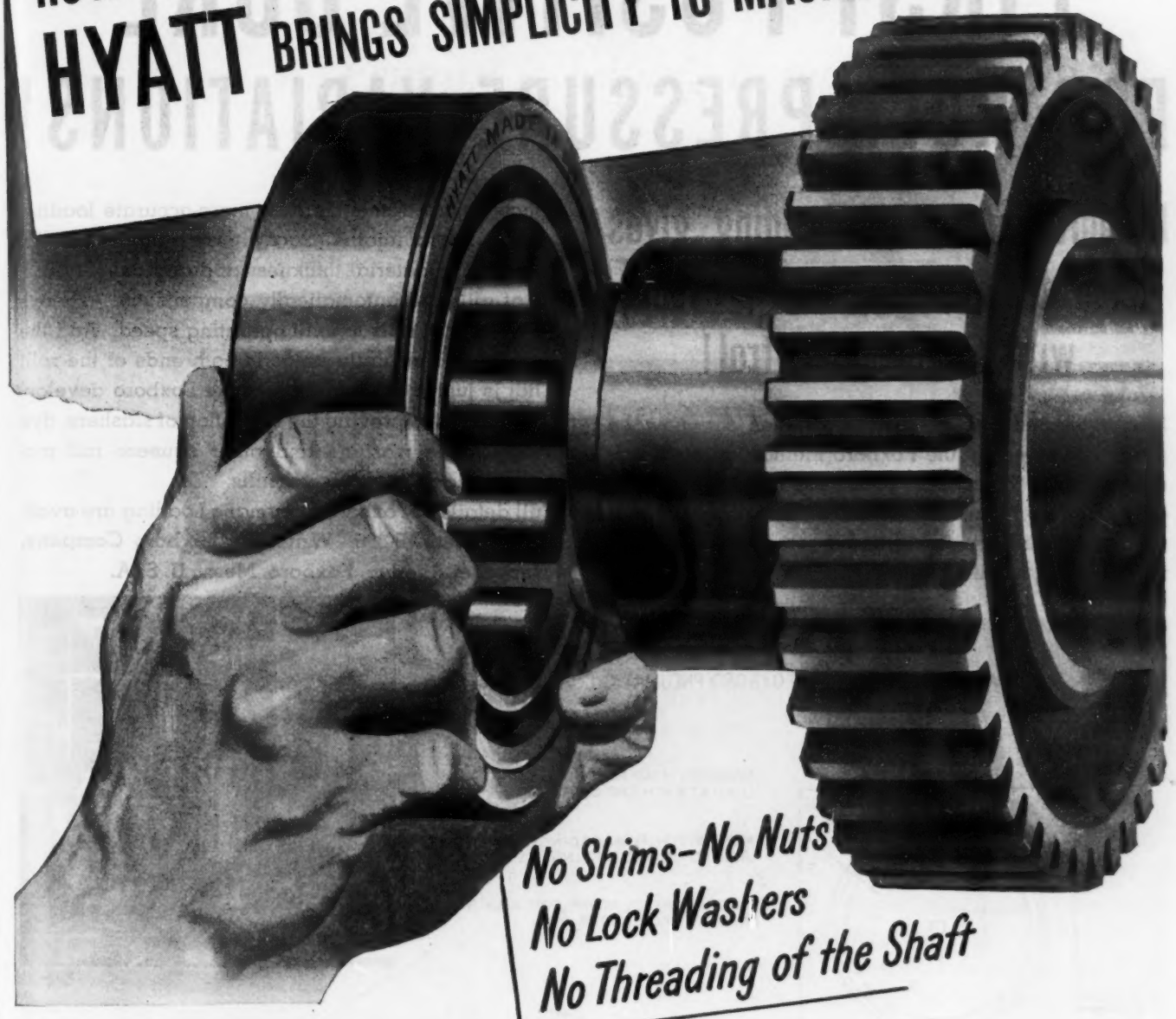
60 EAST 42nd STREET, NEW YORK 17, N. Y.

CAUSTIC POTASH • CAUSTIC SODA • PARADICHLOROBENZENE • CARBONATE OF POTASH • LIQUID CHLORINE

Caustic Potash · Caustic Soda · Liquid Chlorine

Paradichlorobenzene · Carbonate of Potash

HOW HYATT BRINGS SIMPLICITY TO MACHINE DESIGN



The introduction of Hyatt Hy-Load Bearings opened up a new vista to machine designers—precision built bearings of varying types to carry heavy loads at slow speeds or lighter or medium loads at higher speeds—some types even take care of intermittent thrusts.

Their narrow widths permit simplicity of design and economy of construction and the complete interchangeability of inner or outer races with the race or roller assembly combinations is especially advantageous for handling on the assembly lines or benches.

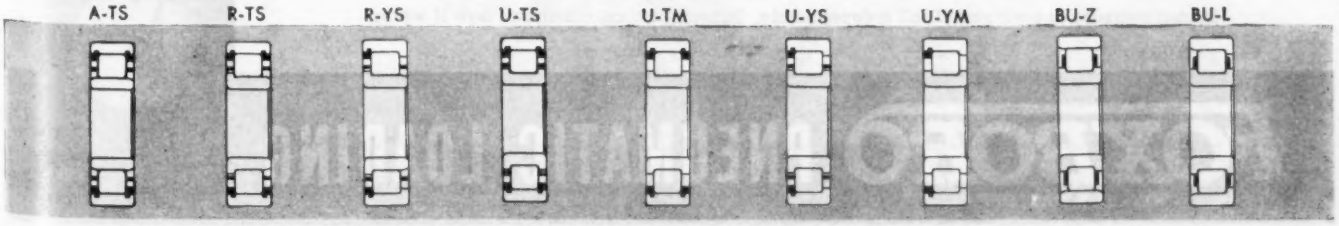
The separable inner race type shown above is one of the nine types of Hyatt Hy-Load Bearings now available to suit any conditions of application.

. . .

Consultation with Hyatt Engineers on bearing problems makes it easy for users to be sure that the bearing selected is the right one and the application is technically correct. A 48-page Bulletin No. 541 covers this range of bearings. Send for it if desired.

HYATT BEARINGS DIVISION • GENERAL MOTORS CORPORATION

Harrison, New Jersey • Chicago • Detroit • Pittsburgh • Oakland, California



FIRST POSITIVE CURE FOR ROLL-PRESSURE VARIATIONS!

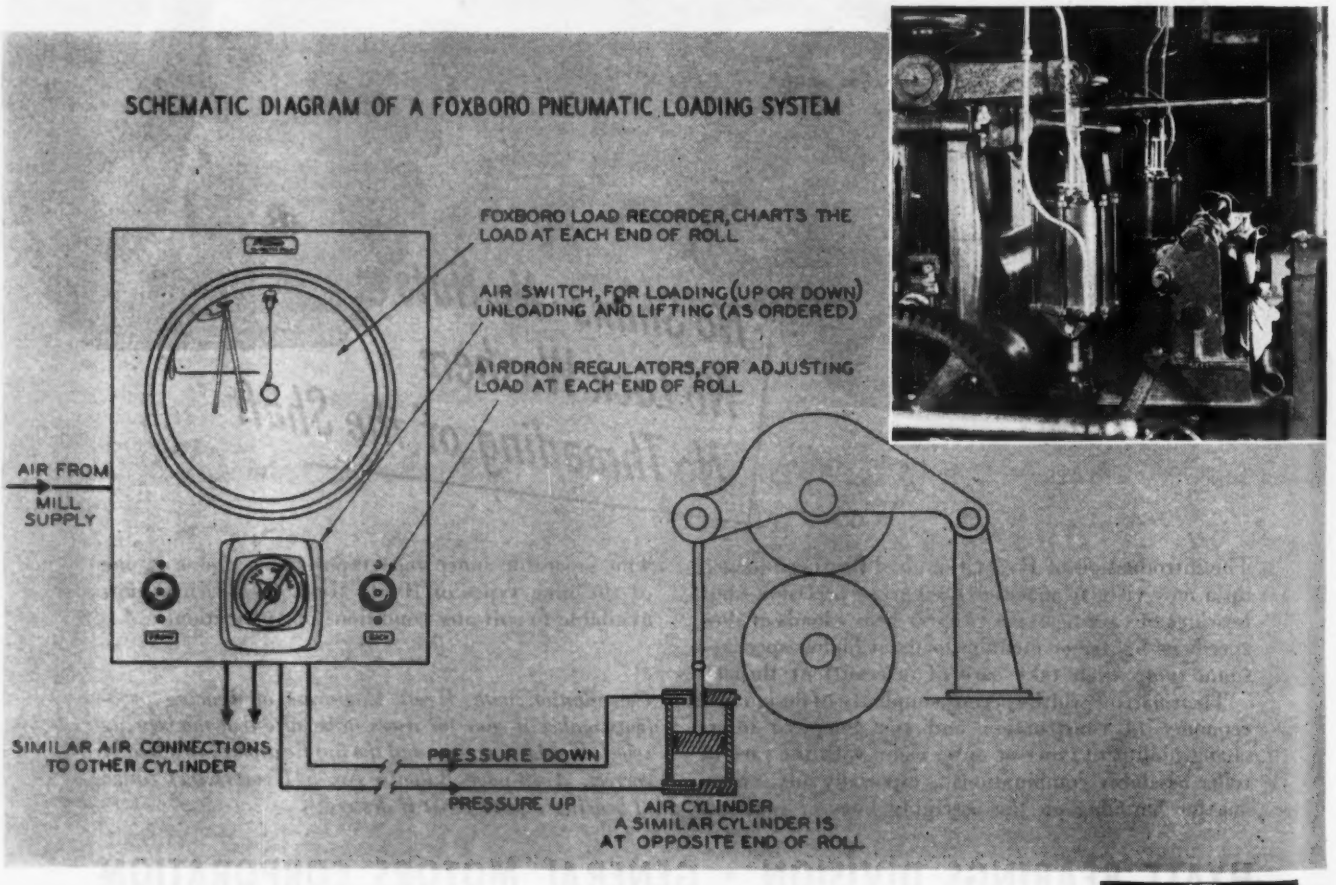
Foxboro Pneumatic Loading gives calibrated "cushioned" pressure with fingertip control!

Size, dye, and water removal troubles can now be greatly reduced by the Foxboro method of pneumatically loading the squeeze rolls. The cushioning effect of air loading results in an equalization of pressure at the nip, assuring uniform liquid removal. Costs are reduced and quality maintained.

Once adjusted, this simpler, more-accurate loading continuously maintains exact pressure automatically. Variations in material thickness and any out-of-roundness of rolls are automatically compensated. There's no bouncing of rolls to limit operating speed. And the flip of a lever instantly unloads both ends of the roll!

That is just a quick outline of the Foxboro development which is improving the operation of slashers, dye padders, cloth washers and other squeeze roll machines in many progressive mills.

Full details of Foxboro Pneumatic Loading are available in Bulletin B-306. Write **The Foxboro Company, 84 Neponset Avenue, Foxboro, Mass., U. S. A.**


SCHEMATIC DIAGRAM OF A FOXBORO PNEUMATIC LOADING SYSTEM
FOXBORO LOAD RECORDER, CHARTS THE LOAD AT EACH END OF ROLL
AIR SWITCH, FOR LOADING (UP OR DOWN) UNLOADING AND LIFTING (AS ORDERED)
AIRDRON REGULATORS, FOR ADJUSTING LOAD AT EACH END OF ROLL
AIR FROM MILL SUPPLY
SIMILAR AIR CONNECTIONS TO OTHER CYLINDER
PRESSURE DOWN
PRESSURE UP
AIR CYLINDER
A SIMILAR CYLINDER IS AT OPPOSITE END OF ROLL

Foxboro Pneumatic Loading is built into this modern dye-padder to provide exact calibrated pressure at each end of roll independently. Schematic diagram shows how it works.

FOXBORO REG. U. S. PAT. OFF. **PNEUMATIC LOADING**

Century is helping to meet

INDUSTRY'S No. 1 PROBLEM

—Making more jobs by helping manufacturers *make more and better products at a lower cost.*

Tough job? Sure! But American industry and ingenuity will do it!

The manufacturers of machine tools and other types of processing equipment are modernizing their designs with one purpose in mind—to help John Q. Public get more and better products at a lower cost.

Business realists realize that this is the only *practical* method of opening the public's purse strings—and thus, through stimulated demand, build increased production and more jobs.

Electric motors are production tools, too—a component part of the production tools they drive. Hundreds of leading designers who know that Century motors are designed with various combinations of engineering features to meet specific production problems are taking advantage of the production cost saving possibilities of Century motors.

Century's national organization of motor specialists is helping production machinery and appliance manufacturers effect savings in original design, as well as savings in production output.

This means that the *entire business public*—from the manufacturers of production equipment down through the fabricators of thousands of products, the wholesaler and retailer—all of whom are trying to deliver a better product to the final user at a lower cost—have a direct or indirect stake in how well the Century organization does its job of helping others to make more jobs.

If you are a manufacturer of motorized production equipment or appliances—call the nearest one of Century's 31 branch offices.

A Century Motor Specialist can be of greatest help while your design is in the experimental or drafting board stage.

Century C MOTORS

CENTURY ELECTRIC COMPANY · 1806 Pine Street, St. Louis 3, Missouri

Offices and Stock Points in Principal Cities

Gulf Quality Lubricants *in the weave room*

help reduce staining,

wear, power consumption—

Actual photo of a Gulf Service Engineer checking loom lubrication in a prominent southern mill.

MODERN HIGH-SPEED LOOMS require the proper application of lubricants that provide full protection against excessive wear, and which resist oxidation, gumming, and "throw" to the highest degree. That is why leading mills specify Gulf oils and greases for this equipment—they have learned from experience that these quality lubricants help reduce staining, power consumption, wear and down-time.

With Gulf quality oils and greases, applied as recommended by Gulf Service Engineers, every mill department operates at top efficiency, and maintenance and power costs are reduced to rock-bottom levels. The reasons: Superior lubricating value and long life!

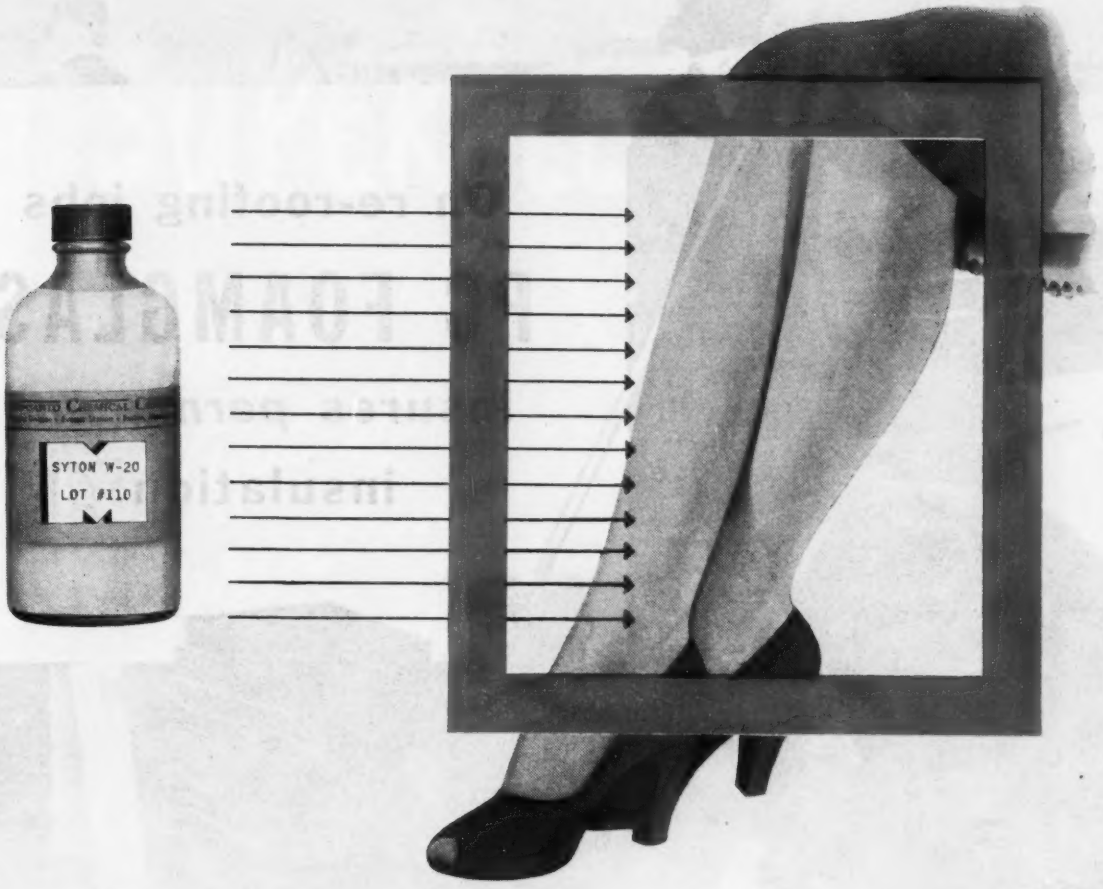
And here's another important plus value you get when you use Gulf lubricants: The helpful counsel of Gulf Service Engineers, specialists in scientific textile mill lubrication. Make sure your equipment is getting the kind of lubrication that insures continuous production and maintenance economies. Write, wire, or phone your nearest Gulf office today and ask a Gulf Lubrication Service Engineer to call.

GULF INDUSTRIAL LUBRICATION

GULF OIL CORPORATION

GULF REFINING COMPANY

GULF BUILDING, PITTSBURGH 30, PA.



snags reduced...wear increased

In mill trials a 5% solution of Syton W-20 applied before the regular finish reduced the tendency of sheer rayon hose to snag over 80% as measured by the standard test of the National Association of Hosiery Manufacturers.

In the same trials, after the same treatment, abrasion tests showed an improvement in wear resistance of 25 to 40%.

* * *

Frankly, it is too soon to promise results like these in mill production on all types of hosiery. But Monsanto's unique, new Sytons promise to be the most effective hosiery finish yet developed for improving snag and run resistance.

Syton W-20 is applied simply by wetting out the hosiery in a dilute solution, then drying. In low concentrations it imparts a dry, slightly crisp finish which is washfast, although the crispness breaks down during washing or in mechanical handling. Sytons appear to have little or no effect on the shade of dyestuffs used or on their fastness to light or washing. In addition to improving snag and abrasion resistance, they usually improve tensile strength, decrease stretch and improve ability to hold shape.

* * *

This is one of a number of problems to which Monsanto textile specialists are finding new and better answers with a wide group of new resins and chemicals. If you would like to know more about the problems already solved . . . or if you would like to pose some new problems . . . write: Monsanto Chemical Company, Merrimac Division, Everett Station, Boston 49, Massachusetts.

Divisions cooperating in Monsanto textile research in addition to Merrimac Division include: Central Research Laboratories at Dayton, Ohio; Organic Chemicals Division and Phosphate Division at St. Louis, Missouri; Plastics Division at Springfield, Massachusetts.

MONSANTO
CHEMICALS AND PLASTICS

The Textile
SERVING INDUSTRY . . . WHICH SERVES MANKIND

When the Wisconsin Malting Company decided to re-roof their Manitowoc plant, they selected PC Foamglas as the one material which would insure permanent insulation. The roofer is shown laying blocks of 2 inch PC Foamglas in hot asphalt. Later, the insulation was covered with roofing felt.

ON the roofs of all sorts of plants all over the country, PC Foamglas is not only proving successful as insulation but also as a vapor-seal and water-stop. The tiny sealed cells of ageless glass, of which this material is composed, make it impervious to most of the enemies that attack other insulating materials.

That is why PC Foamglas retains its insulating efficiency *indefinitely*. Water cannot penetrate its cellular structure. Vapors, fumes, acid atmospheres have no effect on this new insulation. Rigid and strong in structure yet light in weight, PC Foamglas does not burn, will not pack, warp, shrink, check or rot.

PC Foamglas helps to maintain temperature and humidity at predetermined levels and to prevent condensation. It has proved to be the solution of insulation problems for men who keep a sharp eye not only on effectiveness but also on costs. PC Foamglas—also widely used in core walls, floors and duct work—can outlast structures in which it is installed, retains its full insulating value, without need for repairs or replacement.

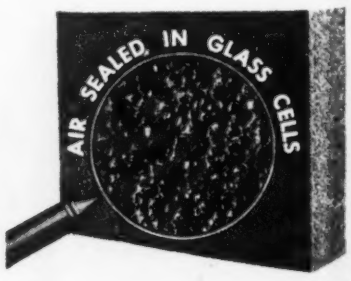
Our insulation technicians will be glad to consult with you. Their findings have been collected and published in brochure form. Just drop us a line today and your *free* copy of "PC Foamglas Insulation for Roofs" will be sent promptly.

Pittsburgh Corning Corporation, 2334-4 Grant Building, Pittsburgh 19, Pennsylvania.

PC FOAMGLAS
T. M. REG. U. S. PAT. OFF.

Water-proof ... Fireproof

INSULATION



The printing gum that stays clear

• Superclear is compatible with all dyestuffs, is easily soluble and removed with a minimum of washing. It does not precipitate with acids or alkalis. Superclear will not become ropey or separate on the machine and does not scratch or stick in the engraving, or mark when the machine is stopped.

Superclear is a natural product—not the result of chemical processing. It does not react with or become part of the chemicals and dyestuffs which it thickens. Superclear is inert and acts only as a thickener. It does not flush off color but is a guaranty of color value.

Make a comparison of Superclear with any product you now use. Let your own tests convince you of Superclear's superiority. A free sample will be sent at once.

WOLF BRAND PRODUCTS

JACQUES WOLF & CO.
Chemicals PASSAIC, N. J.
OTHER PLANTS: CARLSTADT, N. J. • LOS ANGELES, CALIF.
WAREHOUSES: Providence, R. I., Philadelphia, Pa., Utica, N. Y., Chicago, Ill., Greenville, S. C., Chattanooga, Knoxville, Tenn.

YOU can pare your horsepower costs to the bone—if your air compressor is a Gardner-Denver "RX."

For this Horizontal compressor is designed especially to spare horsepower—yet to deliver a big volume of air.

The "RX" is an exceptionally smooth-running machine—proved in tough service throughout America. And a popular feature with "RX" users everywhere is the automatic control that regulates air output to fit air needs. Cylinder heads, valves and air passages are completely water-jacketed to insure low lubricating costs—and low discharge temperatures.

For complete information and specifications on Gardner-Denver "RX" compressors, write Gardner-Denver Company, Quincy, Illinois; Atlanta, Ga.; Birmingham, Ala.; Boston, Mass.; Hazleton, Pa.; Knoxville, Tenn.; Washington, D. C.; New York, N. Y.; Philadelphia, Penna.; Pittsburgh, Penna.

NOTE THESE HORSEPOWER SAVING FEATURES:

1 *"Air-cushioned" Duo-plate valves are double-ported and possess maximum area for high efficiency and low power requirements.*

OTHER "RX" FEATURES

2 *Positive flood type lubrication assures smooth-running and minimum maintenance.*

3 *Rugged, dirt-free main frame insures long life.*

4 *Timken roller main bearings mean long, trouble-free service.*

GARDNER-DENVER

Since 1859

Birds of a Feather . . . Lovely legs and clear, even-textured, full-fashioned stockings just naturally belong together. Every full-fashioned stocking manufacturer knows that the first step toward superior knitting results is careful selection of the needles. Keep your Knitting Machines young and effective with TMW Needles . . . *And remember: Regular Reneedling Pays! Let us put your needle bars in shape for faster, more accurate, more profitable knitting.*

TEXTILE MACHINE WORKS • READING, PA.

"We learn the value of a thing when we have lost it.
SENECA

Until the Victory is Won! . . . The men and experience back of Reading Full-Fashioned Knitting Machines are enlisted for the duration. We *cannot* give you new machines — but we *will* do the next best thing: Our engineers will do their utmost to help you keep your present equipment at highest efficiency. *Let us tell you about our complete reconditioning service and what it means in terms of better fabrics and bigger profits.*

TEXTILE MACHINE WORKS • READING, PA.

THE WAR DECORATIONS OF TEXTILE MACHINE WORKS

Bur. of Ord. Flag and Navy "E"
July 25, 1941

One Star All-Navy "E" Burgee
January 25, 1942

Two Star Army-Navy "E"
July 25, 1942

Three Star Army-Navy "E"
January 25, 1943

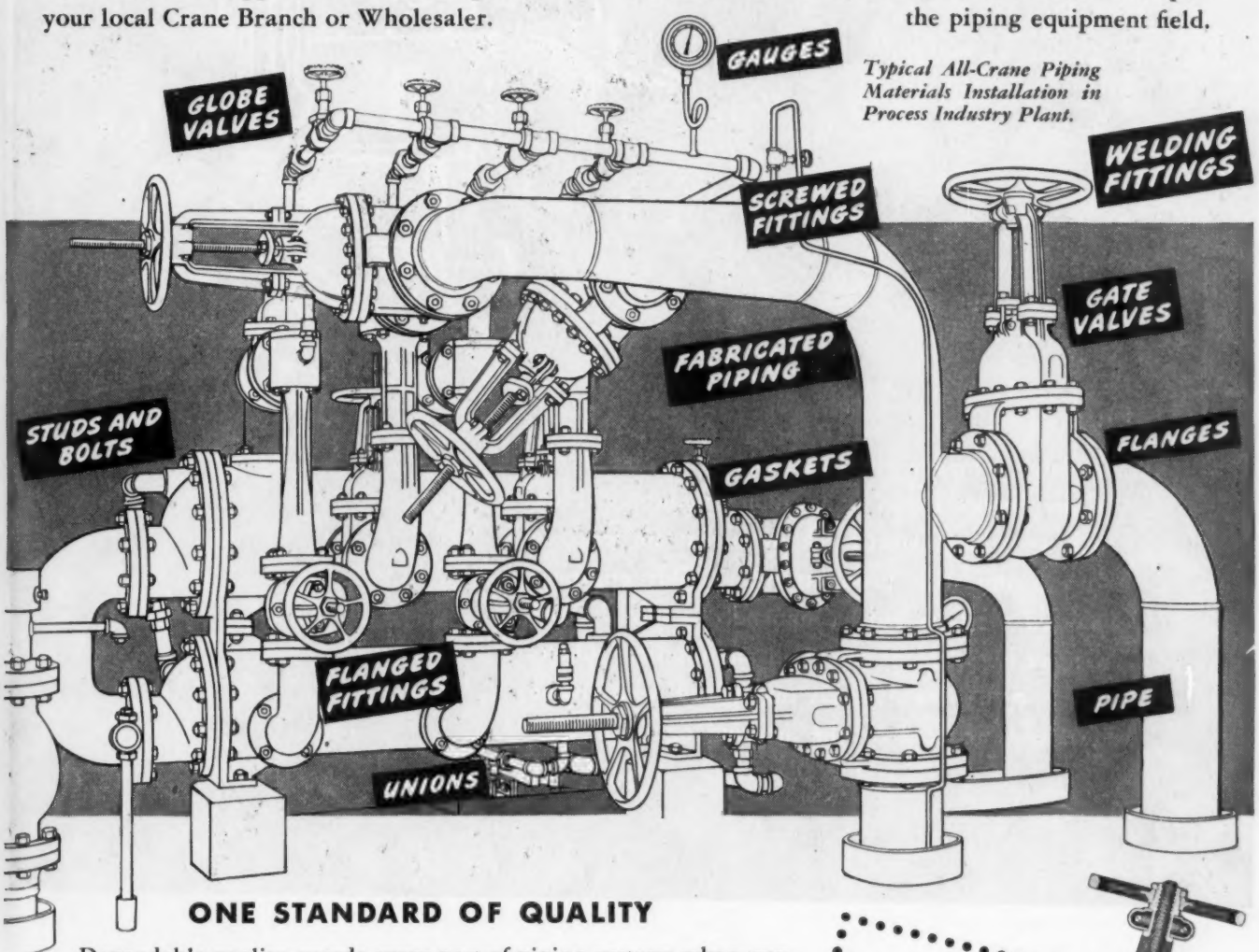
Four Star Army-Navy "E"
January 11, 1944

Piping Materials for Any Need ...Crane Can Supply Them

ONE SOURCE OF SUPPLY . . . ONE RESPONSIBILITY FOR ALL EQUIPMENT

The easiest way to dispose of piping supply problems is to put them up to Crane. Doing that gives you the world's greatest selection of equipment for every service—power or processing systems, high or low working pressures. All your needs of valves, fittings, pipe, fabricated assemblies and piping accessories are supplied from one single source—your local Crane Branch or Wholesaler.

Now when you are trying to catch up with deferred maintenance, Crane *complete* piping materials service is a big advantage. From ordering to installation, every step of the job is simplified. And while one responsibility for materials helps assure the best installations, you are also getting full benefit of Crane Co.'s 89-year experience and leadership in the piping equipment field.



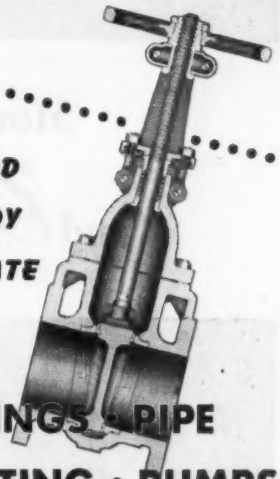
Typical All-Crane Piping Materials Installation in Process Industry Plant.

ONE STANDARD OF QUALITY

Dependable quality guards every part of piping systems when you specify Crane materials throughout. Such quality is exemplified by Crane Iron Body Wedge Gate Valves. Strong body sections resist severest strains. Straight-through ports permit unrestricted flow. A deep stuffing box lengthens packing life. Long guides keep disc travel true, while the finest design in every part assures long life and smooth, trouble-free service.

Crane Co., General Offices: 836 S. Michigan, Chicago 5, Ill.

Branches and Wholesalers Serving All Industrial Areas

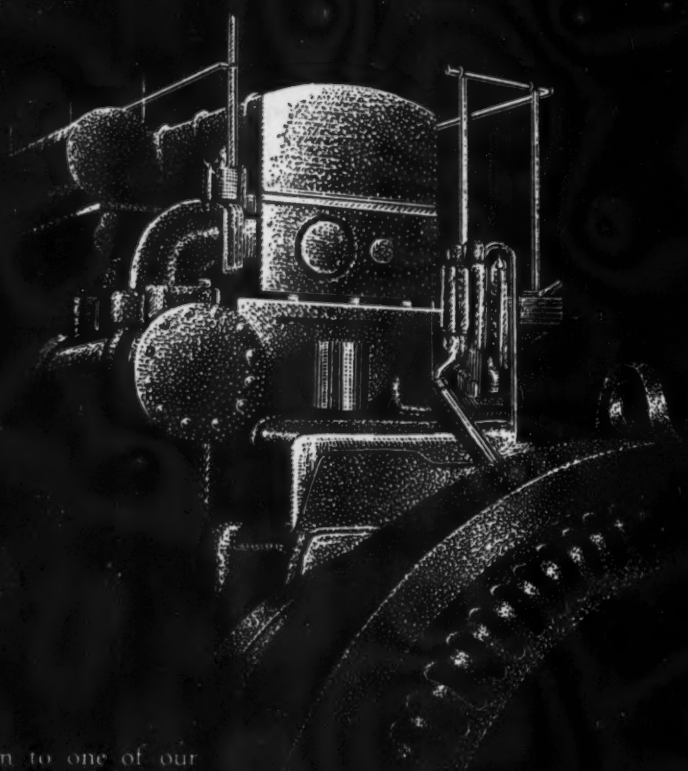


STANDARD IRON BODY WEDGE GATE VALVES

CRANE

VALVES • FITTINGS • PIPE
PLUMBING • HEATING • PUMPS

EXAMPLE OF *Service*:



A large company put this problem to one of our Cities Service Diesel Lubrication Engineers: "How can we reduce Diesel breakdowns that are seriously interfering with production?". . Our engineer studied the facts and recommended a special Cities Service Diesel lubricant. In 38 months since, Diesel efficiency has been steadily maintained, with engine overhauls reduced by the amazing figure of 30%.

More and more, it's service that counts . . .

and *Cities Service* means *good service*!

CITIES SERVICE OILS — ONCE-ALWAYS

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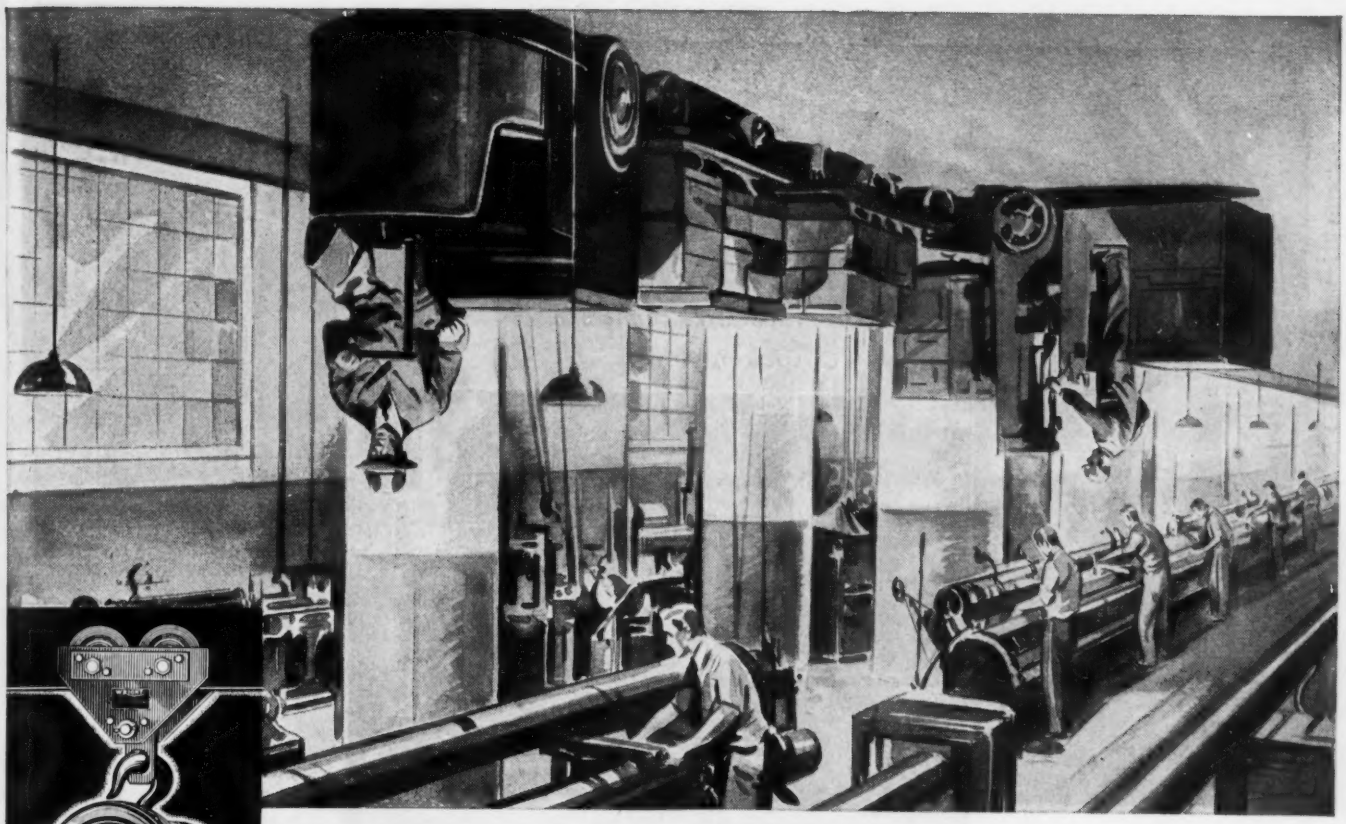

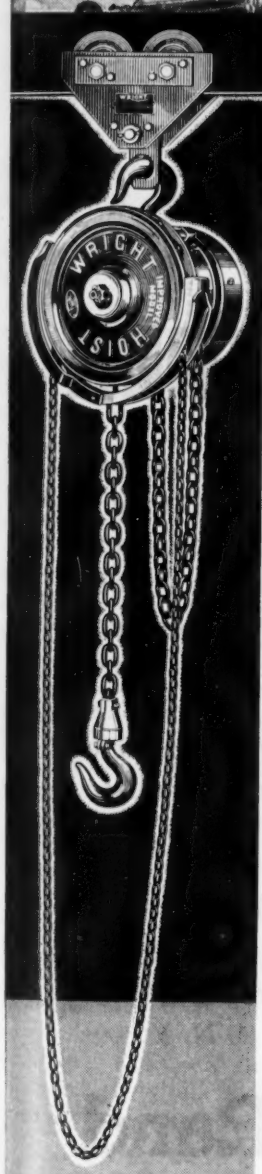

Wright

gives the one-story shop two production floors

WRIGHT HOISTS and **CRANES** can make your idle ceiling help speed production. From their long years of accumulated experience, **WRIGHT** engineers can suggest ways to use your overhead space so that a one-story shop virtually has two production floors. **WRIGHT** Improved High Speed Hoists, **WRIGHT** Speedway Electric Hoists, and the famous **WRIGHT** Cranes have long made possible fast, safe, economical transportation of materials. • Your local **WRIGHT** distributor is well qualified to suggest methods for both speeding production and saving money. • You will find him listed in your metropolitan classified telephone directory. You can depend upon him. If your problem is special, ask your distributor to call a **WRIGHT** engineer, who has had years of experience in solving all manner of material handling problems.

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FLYING OVER THE WRIGHT HOIST PLANT

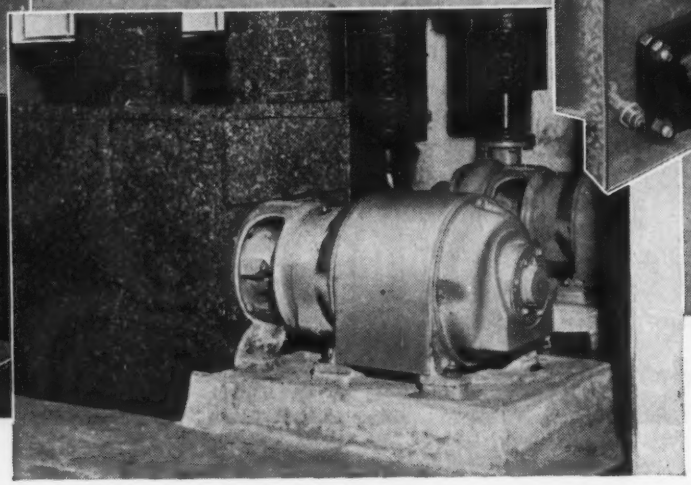
In Business for Your Safety

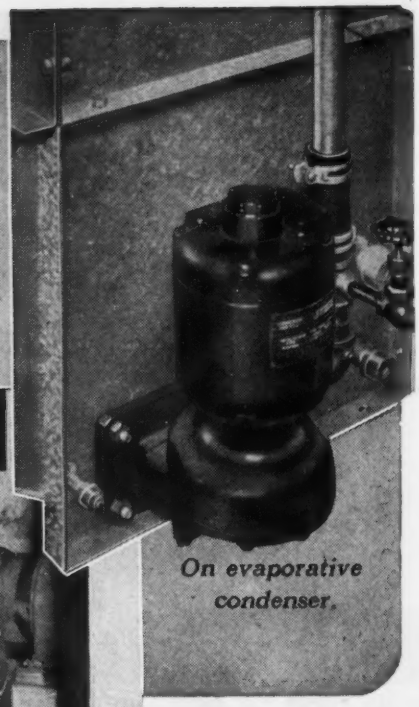
WRIGHT *Improved High Speed* **HOISTS**

Motorpumps

Left—*On evaporative condenser.*

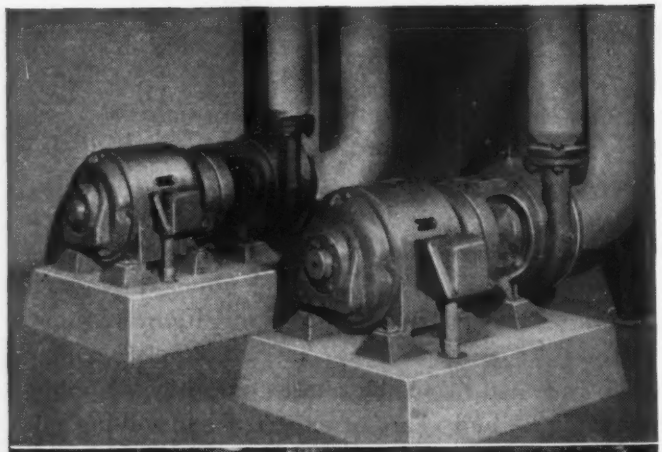
Below—*Circulating brine.*

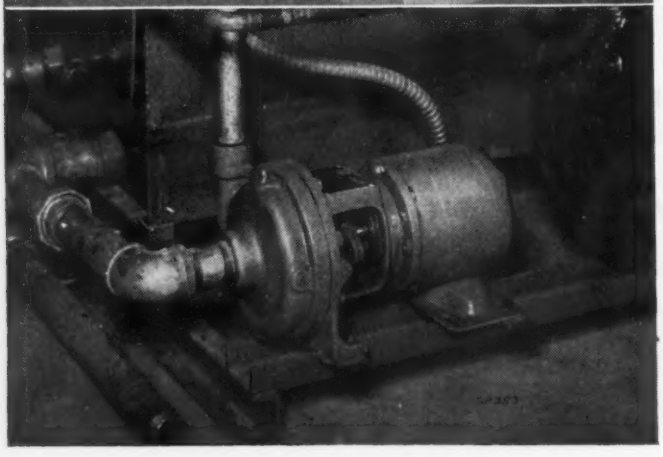




On evaporative condenser.

help REMAKE THE WEATHER





Above—*Circulating hot water.*

Left—*On humidifier.*

Motorpumps are ideal for air conditioning installations because (1) they are highly dependable, (2) they are efficient, (3) they are compact, (4) they are modern in appearance, and (5) repair parts are simple and readily available.

Motorpumps are built in a complete range of sizes for handling from 1 to 1800 gal. per min. against heads from 5 ft. to 600 ft.

Let our engineers give you complete information. Ingersoll-Rand Company, Cameron Pump Division, 11 Broadway, New York 4, N. Y.

Ingersoll-Rand

9-521

RUSSIA

Threat . . . or Promise?

WHEN this war is ended, two nations—the United States and Russia—will possess the bulk of the world's military and industrial might.

Whether this new situation will hold seeds of catastrophe or of unprecedented opportunity will be determined by policies . . . still to be formulated.

If this concentration of power leads to a bitter struggle for supremacy, then the world will be turned into a giant munitions factory.

If it is used cooperatively to maintain order, then, I believe, the stage is set for a long era of prosperity . . . and peace.

It is time that Americans, whether of the Right or the Left, face this basic issue squarely and open-mindedly.

☆ ☆ ☆

No group in this country has a greater stake than have business and industry in seeing that a satisfactory Russian-American understanding is reached.

Without such an understanding there can be no reasonable hope for more than a temporary and insignificant reduction of our crushing wartime tax burden. If the threat of a clash between these two giants impends, neither bankers nor governments will run the risk of lending on a scale adequate to maintain international trade at levels necessary for our future prosperity. Potential international customers, instead of buying freely in open world markets, will be forced—as during the dangerous period introduced by Hitler in the early 1930's—into the trading camp of whichever power they fear most.

If, however, Moscow and Washington will agree on cooperative plans for maintaining the peace, American business will enjoy enormous new trade opportunities after the war.

☆ ☆ ☆

Russia, during the three and one-half years since it was attacked by Hitler, has conclusively proved to a doubting world that it is a top-flight military power.

Soviet railroads did not break down under the strain of war.

Regions accounting for nearly 70 per cent of Stalin's key industries were engulfed by the invading Nazis, but before they fell, Soviet management engineers performed a near miracle by transplanting entire industries a thousand miles to the Urals with the loss of as little as four months' production in many cases.

Though American planes, trucks, and medical supplies have been welcomed by Moscow, fairness demands the admission that more than 98 per cent of American production has *not* gone to the Russian front.

Russian planning and *Russian* equipment won the victories of Leningrad, Stalingrad, and the Caucasus.

☆ ☆ ☆

But these measures of Soviet military strength—indicative as they are of an unsuspected economic development—fail to picture in adequate detail the startling potential of the Russian market after the war.

Russia, for instance, has two and one-half times the area of the United States.

It has a population of nearly 200,000,000, and this is increasing at the rate of 2,500,000 a year.

And statistics just released show that Russia has three times as many youngsters under 16 as has the United States. This is a measure both of war potential and of a vast commercial market.

And remember that in no part of the world before the war was per capita production rising as rapidly as in the Soviet Union.

☆ ☆ ☆

German armies occupied a region in Russia roughly equivalent to the territory in the United States north of Richmond, Virginia, and east of the Mississippi.

This huge area—with its counterparts of Pittsburgh, Buffalo, and Bridgeport; of Illinois corn fields, New York dairy farms, and Maine potato harvests—was *twice* subjected to the most withering destruction; first by the Russians themselves when they retreated before the Germans, and then by the Germans when they withdrew before the victorious Russians.

As a result, 30,000,000 people are in urgent need of complete reoutfitting. They need houses and shoe laces, trolley cars and baby carriages, tractors and livestock, hydroelectric plants and electric light bulbs.

Many of these needs will be met at home. It is doubtful, for instance, if Moscow will import cooking utensils or sewing machines, for many of Russia's huge war factories can quickly be converted to peacetime production of such consumer goods.

But for the rebuilding and expansion of her industries Russia looks to the United States for equipment.

Soviet representatives already are in this country with authority to negotiate for technical men and the equipment necessary to rebuild the great Donbas coal mines according to the most modern American methods.

It is important to remember that Russia's whole iron and steel industry, its non-ferrous mining and processing, some of its chemical production, much of its coke roasting and gas recovery, practically its entire automobile and tractor industry, and the largest of its hydroelectric plants, are based on American machinery and processes.

It is known among manufacturers that Russia recently has asked for bids on shipbuilding equipment, construction and roadbuilding machinery, alloy steels, textile machines, plastics, and a long list of rail, air, and water transport supplies.

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The Soviet Union, however, has more than a rehabilitation job on its drawing boards.

The first Five-Year Plan, which, as we all remember, was completed ahead of time in 1932, was devoted almost exclusively to heavy industry. Russia set out to build for itself the machines and the factories which, in later years, could turn out, at home, modern equipment for a vast range of light industries.

Stalin, when he inaugurated the second of his famous Five-Year Plans, promised that before it was completed Soviet factories would begin to turn out a flow of con-

sumer goods—ready-made dresses, canned foods, soap, cosmetics, shoes, kitchenware, automobiles, telephones, and modern houses.

But, by 1935, Moscow realized that Russia could not afford to enjoy such luxuries in the face of growing political tension in Europe. So, when the third Five-Year Plan was launched, there was no fanfare. Russians continued to wear their old clothes, to eat whatever simple food was available, and began grimly to build the industries which ultimately produced enough tanks, planes, and guns to turn the tide of battle at Stalingrad.

It is characteristic of Moscow that even before the last battles with the Nazis are over, Russia is planning to pick up its Five-Year Plans where the war had interrupted them.

Invitations to participate in a permanent exhibition in Moscow already have been mailed to American manufacturers. Soviet officials want their public to see samples of our new machine tools, aluminum and alloy products, oil-drilling machinery, bulldozers, and prefabricated kitchen equipment. Russia already is projecting specific plans to resume the job (1) of making the country an industrial giant comparable to the United States, and (2) of making life more pleasant for a long-suffering people.

☆ ☆ ☆

What is the measure of this postwar market in the Soviet Union?

Some estimates place the total quantity of goods which Russia might take from the United States during the first two or three years after the war as high as $5,000,000,000 a year. Then, as Russian industry is restored, imports from the United States might taper off perhaps to $2,000,000,000 a year.

Actually, these estimates are far too optimistic, unless the United States is prepared (1) to help Russia pay by buying vast quantities of Soviet raw materials, and (2) to provide large credits to handle the purchases during the first few years of rehabilitation.

The relations of American exporters with Russia during the period covered by the three Five-Year Plans have been eminently satisfactory. Moscow has met all of its obligations punctually; fifteen years of experience have reduced contract forms to the point where they cause a minimum of misunderstanding between the Russian representatives and the American producers; individual American companies with extensive prewar experience in handling Soviet business already are offering large credits on initial postwar orders though these may yet be replaced by large government credits at lower interest rates.

But the volume of trade with Russia after the war hinges upon Moscow's ability to pay. Never before the war did the United States buy more than $30,000,000 of goods a year from Russia. As late as 1938, Soviet exports to this country amounted to as little as $23,500,000, far less than enough to pay even the service charges on the credits which would have to be extended in connection with exports of several billion dollars a year. Only South Africa produces more new gold each year than the Soviet Union. But the United States does not want gold; more of it would only complicate the problem of controlling prices here.

If the United States, however, is to achieve, after the war, the high level of national income which is necessary (1) to keep our expanded factories in operation, and (2) to service the national debt, it might absorb from $90,000,000 to $100,000,000 a year of the kind of goods bought from Russia before the war—furs, timber, manganese, chromium, and handicrafts. But unless this volume of purchases from Russia can be boosted by another $50,000,000 annually, credits of the size necessary to fill immediate Russian needs could not be serviced without large supplemental importations of undesirable gold.

The nub of the situation is that Russia offers an extraordinary potential market particularly for our heavy industries which have grown so enormously during the war. But if this sales outlet is to materialize, then the United States must find a way to import from Russia (or from Russia's debtors if any) from ten to twenty times as much as we did before the war. Instead of merely going after the export business, American businessmen must explore with the Russians the possibility of buying bigger supplies of Soviet products.

☆ ☆ ☆

But more than the Russian market itself hinges upon sound cooperative action by the world's two leading military-industrial nations.

If trade between them is held to a minimum and if relations are strained, the flow of trade all over the world will be adversely affected.

Europe, long this country's biggest export outlet, certainly will never take the bold steps necessary to reconstitute its economy on a peacetime basis if Russia and the United States drift into a race for military supremacy.

The Balkan states, which may be industrialized by Moscow in order to reduce their dependence on Germany, and the Arab world with its huge need for transportation, irrigation, and sanitation, will not dare accept American credits or make big contracts with American engineers if Moscow frowns on the deals.

And refusal of Russia and the United States to work cooperatively to maintain the peace would kill, in their present embryonic stage, all dreams of a vast industrialization program for China.

☆ ☆ ☆

The opportunity to make a major change in the trade map of the world and at the same time to achieve a sharp rise in our own standard of living is before us.

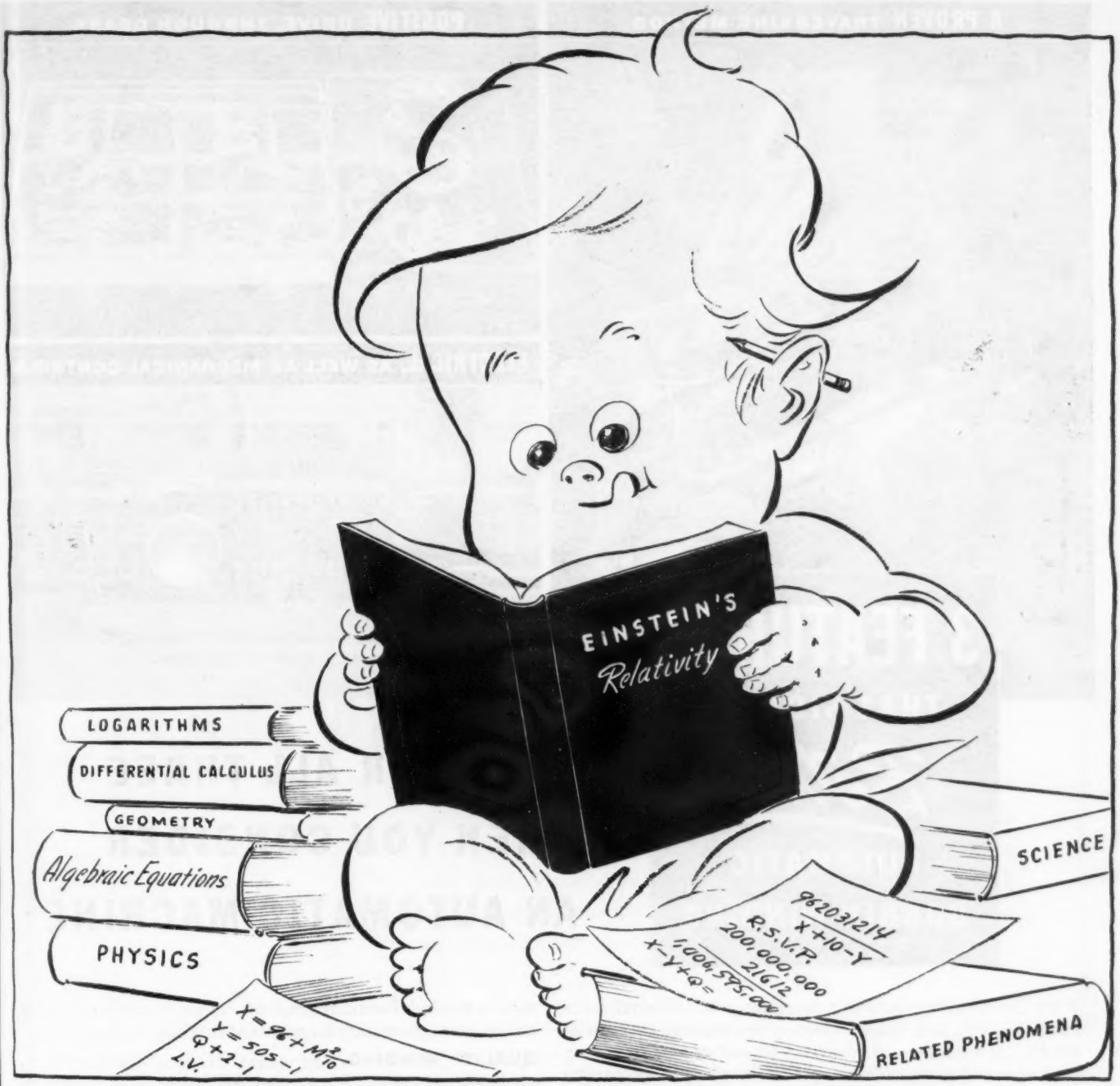
It demands of American business leaders the kind of boldness and imagination that their predecessors displayed when they pioneered this country's unknown West.

It demands realistic action by men who know that the solution to this country's *real* foreign trade problem under today's conditions lies in boosting *imports* not exports alone . . . men who are not afraid of being paid for what they sell.

It calls for leaders who will approach Moscow and other major customers at once with constructive plans that would parallel in scope those on which this country is waging war . . . leaders who will make it clear at the outset that this bid for cooperative action emphatically demands that each nation shall have complete freedom to determine its internal political and economic organization without interference from the other.

It is *this* caliber of leadership upon which our future hinges.

President McGraw-Hill Publishing Company, Inc.



He May be a Genius...but what can he DO?

Yes, many brilliant ideas have been born of the War Effort. But how useful they will prove in the Winning of the Peace — there's another story remaining to be told. In fact, not even all the parents of these brain-children are sure how they will grow up, or what employment they will find, in civil life.

One thing is sure: There's a lot of hard work ahead, in adapting, re-shaping, and developing these prodigies. For it takes time to turn from the destructive aims of war to the constructive arts of peace. Here at the Loom Works, we have our own fair share of these promising puzzles . . . in mechanics, electronics, hydraulics, metallurgy, optics, photography, plastics, and so on. But any outgrowths of these will be applied to C & K Looms only when the value of their applications can be conclusively proven in terms of consistently higher weave-room efficiency.

And here's another thing that's sure: There will be no sudden flood of half-baked magic from C & K's engineering laboratories the day after Tokyo is occupied . . . any more than there will be from *any* concern that considers its customers and its future. So don't wait for any complete new "miracle" looms. Take them as they come, with their gradual *proven improvements*, and keep up with the progress parade . . . *don't wait by the roadside and let it pass you by.*

Crompton & Knowles Loom Works

WORCESTER 1, MASSACHUSETTS, U. S. A.
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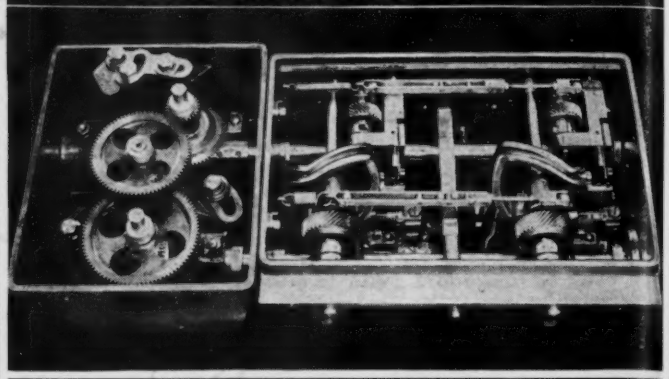
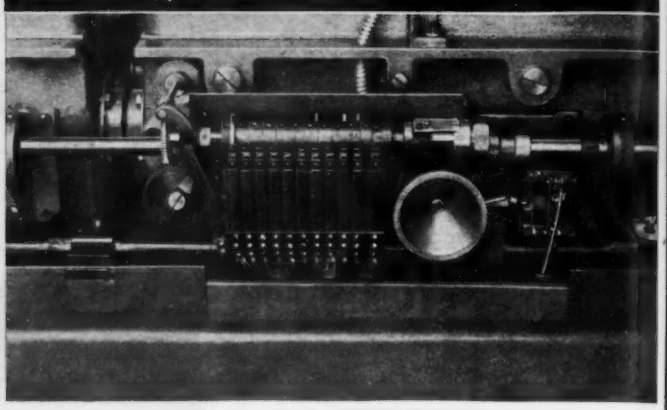
BRIDGING THE GAP between Today's War Weapons . . . and their New Uses in Tomorrow's Looms

A PROVEN TRAVERSING METHOD

POSITIVE DRIVE, THROUGH GEARS



ELECTRICAL, AS WELL AS MECHANICAL CONTROLS



3 FEATURES THAT SIGNIFY *Better* AUTOMATIC BOBBIN WINDING

LOOK FOR ALL THREE WHEN YOU CONSIDER AN AUTOMATIC MACHINE

When Universal engineers were developing the Universal Automatic (No. 99), they decided to retain two essential elements of the No. 90 Machine — its positive drive and its yarn traversing method — and to use a combination of electrical and mechanical controls to make the machine automatic.

Alternatives were available — a driving agent other than gears, various unproved traversing devices, a wholly mechanical control system. As the result of their decision, mills operating the Universal Automatic have found that it gives . . .

MAXIMUM PRODUCTION. On the Universal Automatic, all spindles are gear-driven from a rotating shaft. With slip eliminated, there is no loss in speed between shaft and spindle.

LOWEST MAINTENANCE. Use of electrical controls for various machine functions simplifies design, eliminates friction, and reduces opportunity for wear and breakdown.

QUALITY WINDING. The unique Universal Traverse Wheel produces bobbins which are round, parallel-sided and free from ridges which cause plucks.

Other Important Universal Features. "Layer-lock" wind, reducing tendency to "shell off" in the shuttle. Centralizing bobbin driver. Automatic release of tension at start of winding. Magazine creeling. Single gear adjustment for changing number of winds. 9½" maximum traverse, 1½" maximum diameter. The UNIVERSAL AUTOMATIC has proved successful over a period of years winding rayon yarns for the loom. Orders for after-the-war delivery are now being accepted for winding all fibres.

UNIVERSAL AUTOMATIC
High Speed Bobbin Winding Machine

UNIVERSAL WINDING COMPANY

. . . Putting Electricity to Work to Improve Your Bobbin Winding

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VOLUME 94 • NUMBER 11 TEXTILE WORLD NOVEMBER • 1944

Industry Plans to Spend $640,972,000 for New PLANT AND EQUIPMENT

By EDWIN D. FOWLE

Editor
TEXTILE WORLD

HIGHLIGHTS: War Restrictions Responsible for Pent-Up Demand for Renovation and Modernization—Prospective Postwar Boom Exerts Pressure for Industry Expansion—Domestic and Foreign Demand May Tax Capacity of Equipment Manufacturers—Millions for Textile Employee-Welfare

EARLY THIS YEAR TEXTILE WORLD asked numerous mill men throughout the industry, in all types of occupations, in all types of mills, in all geographical locations, what problems likely to face them in the postwar era they considered most important. As reported in the February issue, a surprisingly high number of these men, 64% of the total, specified the job of replacing worn-out and obsolete manufacturing facilities. In consequence, TEXTILE WORLD takes the occasion of its eighth annual "mill check-up," always a November feature, to examine this problem further.

HIGH ACTIVITY. The textile industry is in an unusual position. To meet war demands it has been pounding its machines at the highest rate in its recorded history. In 1942 it hit an all-time peak of 98% above the 1923–1925 level. Yet, since early in 1942 until recent weeks, it has been prohibited from buying anything but the most war-necessary equipment. And at the present time, although priorities are no longer required for the placing and receiving of orders for machinery, many machine builders are still so busy on armament work that they are unable to meet demand.

Even had there been no war and no unusual textile-mill activity, the industry would have wanted to spend over $150,000,000 for plant and major equipment during this period, if past expenditures may be taken as a guide. Add to this normal demand the excessive replacement needs created by the wear and tear of high activity and the obsolescence which was already an influence to be reckoned with before the war, plus the improved financial position most mills now enjoy, and plus also the optimism with which mill men are viewing the postwar business picture—and it is understandable why TEXTILE WORLD's estimate of the major wants of the industry stands at over $640,000,000.

POSTWAR PLANS. TEXTILE WORLD has obtained its figure by asking a large and representative group of mills what they are now definitely planning to buy in the next five years and then, in the true tradition of modern poll taking, projecting over the industry as a whole, in proper ratio, the figures obtained by this sampling.

Although the mills were asked about their plans for a five-year period, they made clear to TEXTILE WORLD that they want the bulk of the equipment they specified as quickly as it can be delivered.

All calculations were made on pres-

CURRENT PLANS FOR MAJOR PLANT AND EQUIPMENT EXPENDITURES

Expressed in Dollars

COTTON BRANCH ***(Including cotton-type mills using staple synthetics)***		
Preparatory, Spinning, and Twisting	134,789,000	
Winding, Spooling, and Warp Preparation	22,297,000	
Weaving[1]	118,878,000	
Bleaching, Dyeing, and Finishing[2]	4,852,000	
Controlling, Testing, and Research[3]	616,000	
General Industrial Equipment and Buildings[4]	31,902,000	
Employee Welfare[5]	10,667,000	
Total Cotton		324,001,000
CONTINUOUS-FILAMENT SYNTHETICS BRANCH		
Throwing	1,038,000	
Winding and Warp Preparation	3,305,000	
Weaving[1]	25,779,000	
Bleaching, Dyeing, and Finishing[2]	112,000	
Controlling, Testing, and Research[3]	74,000	
General Industrial Equipment and Buildings[4]	5,244,000	
Employee Welfare[5]	222,000	
Total Continuous-Filament Synthetics		35,774,000
WOOL BRANCH		
Woolen Preparatory, Spinning, and Twisting	7,696,000	
Worsted Preparatory, Spinning, and Twisting	13,800,000	
Winding, Spooling, and Warp Preparation	2,698,000	
Weaving[1]	14,331,000	
Dyeing and Finishing	4,840,000	
Controlling, Testing, and Research[3]	126,000	
General Industrial Equipment and Buildings[4]	7,922,000	
Employee Welfare[5]	700,000	
Total Wool		52,113,000
COTTON AND SYNTHETICS FINISHING BRANCH[6]		
Bleaching, Dyeing, and Finishing[2]	25,546,000	
Controlling, Testing, and Research[3]	99,000	
General Industrial Equipment and Buildings[4]	21,060,000	
Employee Welfare[5]	324,000	
Total Cotton and Rayon Finishing		47,029,000
FULL-FASHIONED HOSIERY BRANCH		
Knitting	114,722,000	
Dyeing and Finishing	1,424,000	
Controlling, Testing, and Research[3]	117,000	
General Industrial Equipment and Buildings[4]	5,939,000	
Employee Welfare[5]	889,000	
Total Full-Fashioned Hosiery		123,091,000
CIRCULAR HOSIERY BRANCH		
Knitting	15,693,000	
Dyeing and Finishing	428,000	
Controlling, Testing, and Research[3]	18,000	
General Industrial Equipment and Buildings[4]	635,000	
Employee Welfare[5]	138,000	
Total Circular Hosiery		16,912,000
KNITTED OUTERWEAR AND UNDERWEAR BRANCH		
Preparatory, Spinning, and Twisting	630,000	
Winding and Warping[7]	808,000	
Knitting	15,882,000	
Bleaching, Dyeing, and Finishing	1,275,000	
Controlling, Testing, and Research[3]	30,000	
General Industrial Equipment and Buildings	1,206,000	
Employee Welfare[5]	150,000	
Total Knitted Outerwear and Underwear		19,981,000
NARROW FABRICS BRANCH (Tapes, Ribbons, Braids, etc.)		
Winding	724,000	
Weaving	4,868,000	
Braiding	1,676,000	
Bleaching, Dyeing, and Finishing	91,000	
Controlling, Testing, and Research[3]	4,000	
General Industrial Equipment and Buildings[4]	256,000	
Employee Welfare[5]	9,000	
Total Narrow Fabrics		7,628,000
MISCELLANEOUS BRANCHES		
Lace, Felt, Batting, Cordage, Linen, Fabric Coating, etc.		14,443,000
TOTAL TEXTILE INDUSTRY		**640,972,000**

ent prices only, with no allowance for the probable increase in prices when OPA controls are removed.

Some margin of error is of course to be expected in any sampling procedure, but in this case the total figures representing the industry's wants are bound to be on the conservative or low side. This is because many of the mill executives who assisted TEXTILE WORLD by outlining their plans did not attempt to specify the auxiliary equipment which they must buy to accompany the major production equipment. It seems certain also that adequate allowance was not consistently made for freight and erection costs. And finally, it is evident that some of the mill men with whom contact was made confined their estimates to those items with which they were personally most concerned—production men ignoring power generation, for example.

A point which must be borne in mind is that this survey does not cover needs for repair parts and minor replacements, which normally add up to a figure comparable to that for new equipment. And of course the survey does not cover chemicals, fuels, cones, bobbins, shuttles, heddles, roller covering, belting, and other supplies constantly consumed. Including such items would considerably raise the figures for the purchasing contemplated by even those branches of the industry which have no elaborate postwar-renovation plans.

ACTUAL PURCHASES. It is well to make the observation also that there is likely to be some difference between what the mills are now planning to buy and what they actually will buy, even assuming that the equipment manufacturers can meet their demands; but it is not too safe to assume that they will buy less.

Many mills are certain to demand more than they now plan, since they are going to be faced with a continuing—in some cases, even increasing—activity in the postwar era. If the manpower, equipment, and supplies were available, some of them would be enlarging their production now to meet current military needs. The growing importance of foreign relief and rehabilitation requirements is only

Footnotes for Table at Left

[1] *Cloth-room equipment is counted as finishing equipment.*

[2] *Independent plants and cotton- and synthetics-mill departments add up to $30,810,000.*

[3] *Includes laboratory equipment, control instruments, counters, etc.*

[4] *Includes air-conditioning, humidification, lighting, conveying, power generation, power transmission, etc.; but individual-drive motors and their accompanying equipment are included in the figures for individual departments.*

[5] *Includes lavatories, smoking rooms, first-aid rooms, industrial music, village houses, restaurants, etc.*

[6] *Independent plants only. Does not include departments of mills.*

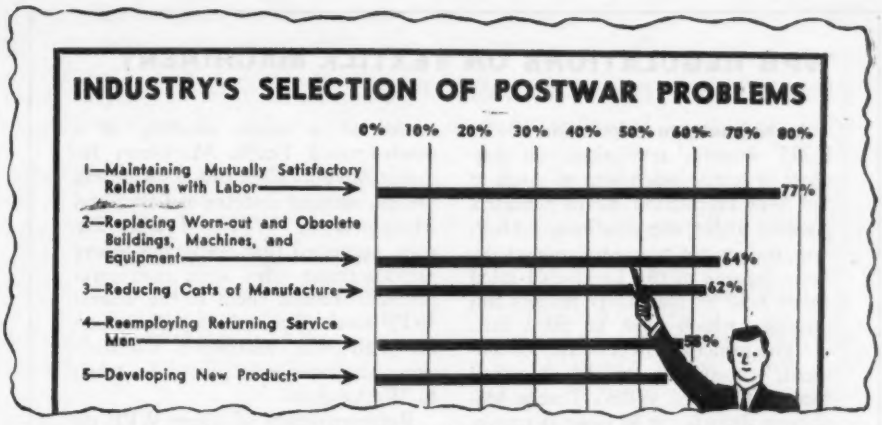
[7] *Warping for Warp Knitting.*

just beginning to win recognition, and these requirements will continue long after V-E Day. They will postpone the all-out start which must eventually be made on the great job of rebuilding the consumer-goods inventories. And in the meantime, the huge demand for commercial textile exports from the denuded foreign countries which have money to spend yawns like a bottomless pit. In other words, the textile industry will continue to operate in high gear and the rapid depreciation of its machinery will continue, perhaps requiring far more replacement within the next five years than can be anticipated now.

A factor which may militate against the full expenditure now planned is the fact that the desire of many mills to purchase new types of machines is based on the hope that they can get in early on the development of a new or improved product; but if others succeed in obtaining their deliveries earlier and so are able to put their new products on the market more promptly, the buying enthusiasm of the less fortunate mills may cool.

The chief factor threatening the industry's renovation and modernization program, however, is the possible inability of the equipment manufacturers to meet the full demand within a reasonable time. It is probable that the definite or "firm" orders already accepted or about to be accepted will keep some concerns busy for nearly a year. What would happen to the timetable if the indefinite or "infirm" orders (subject to price changes and cancellations) were counted on their books is something to contemplate. Some builders, having learned a valuable lesson from the country's war-production procedure, are setting up extensive programs of subcontracting; and this policy may go far toward relieving the situation.

FOREIGN DEMAND. One cannot pass over this subject without consideration of a factor which is new, at least in magnitude, to the textile-machine-building industry. This is the demand for American textile machinery from foreign nations. It is a demand which our own federal government, in its attempts to industrialize backward countries for the sake of future world peace and security, and for the sake of increasing America's prosperity through enlarged foreign trade, is aiding and abetting. It is true that building strong textile industries in low-wage countries, such as China and Brazil, will develop strong competition for American manufacturers to meet at some future date. Must we again go through the process of establishing "gentlemen's agreements," such as the one we made with Japan, to protect ourselves in our own domestic markets?



Importance of postwar renovation and modernization problem stressed by mill men, as reported in the February, 1944, issue of TEXTILE WORLD.

Doubtless the hazards of the distant future in these respects are great; but it cannot be overlooked that the first manufacturing industry in any industrializing country is certain to be textiles, that many low-wage countries are definitely headed for industrialization, and that, if those countries are not allowed to buy textile equipment in America, they will buy it somewhere else. Therefore, for the moment our chief concern over the question as to whether extensive shipments of machinery are to be made abroad is one as to how extensively this will handicap our own renovation program.

Current Plans Compared with Actual Expenditures in 1939

Based on U. S. Census of Manufactures for 1939 and New TEXTILE WORLD Survey

Expressed in Dollars

EXPENDITURES in 1939	EXPENDITURES Now Planned
Cotton Branch (Including Cotton-Type Mills Using Staple Synthetics)	
30,194,000	324,001,000
Continuous-Filament Synthetics Branch	
9,864,000	35,774,000
Wool Branch	
9,753,000	52,113,000
Cotton and Synthetics Finishing Branch	
7,059,000	47,029,000
Full-Fashioned Hosiery Branch	
14,709,000	123,091,000
Circular Hosiery Branch	
5,024,000	16,912,000
Knited Outerwear and Underwear Branch	
5,407,000	19,981,000
Narrow Fabrics Branch	
1,283,000	7,628,000
Miscellaneous Branches	
4,377,000	14,443,000
TOTALS	
87,670,000	640,972,000

MUST REDUCE COSTS. Incidentally, one of the best ways we can meet the future competition from low-wage countries is to reduce our own labor costs through the development and installation of more automatic and efficient machinery. It is still the curse of the textile industry that it is one of the largest employers of labor in the world. It is to be hoped, therefore, that the machine builders, in the lush days which lie ahead when they can sell almost anything they produce somewhere, will not relinquish their research and development programs, but will continue to expand them.

More-automatic machinery would widen the domestic market for textiles, since it would reduce costs and prices; and, if the savings were properly proportioned, it would at the same time permit the industry to pay higher wages and attract higher-grade, more-efficient help. Such movements build up like a rolling snowball—more-efficient help further reduces costs. Such machinery would also help certain sections of the industry in their competition with plastics and paper.

Until recently, the industry and machine builders have been seriously handicapped toward revolutionary technological progress by the variability of textile raw materials. Now the sweeping inroads of the controllable, man-made synthetic fibers are opening the doors to the development of more simplified, precision, and highly automatic equipment. The vision of many progressive textile manufacturers is expanding in proportion, and they stand ready to make whatever large investments are necessary to speed and simplify textile operations and reduce

WPB REGULATIONS ON TEXTILE MACHINERY

Amendment to Limitation Order L-215 removes restrictions on purchase of textile machinery as much as the War Production Board considers possible under war conditions. However, it does not guarantee prompt delivery because of the backlog of rated orders held by machinery makers and priorities which must be filled first.

"The principal effect of the amendment," according to L. Marshall Newell, Chief of WPB's Textile Machinery Branch, "is to make it unnecessary for persons wishing to acquire textile machinery to file an application for approval from WPB." It is also unnecessary to file schedules covering the production of these types of machinery.

As has been the case heretofore, the manufacturers must continue to file for their controlled materials with the Controlled Materials Plan Branch of WPB. Furthermore, there is still a control of manpower. The net effect is that in many cases the manufacturers are simply being allotted potential business.

The only ratings which the amended order permits are for military purposes and for extremely urgent civilian requirements. Mr. Newell stated recently that there are few if any circumstances that would warrant issuance of ratings for civilian purposes. Because of the urgent requirements of Army and Navy for duck and duck-fabric substitutes, WPB has amended CMP Regulation No. 5 to provide an AA-1 rating on maintenance, repair, and operating supplies for mills which have converted their facilities to the production of those fabrics.

There are no restrictions on exportation of textile machinery. It is not necessary now to report to FEA and fill out preference ratings. Used machinery will be exported in increasing quantities, according to an FEA spokesman.

Problems facing the industry, especially in manpower and critical shortages of component parts, were discussed at a recent meeting of a newly-formed Textile Machinery Industry Advisory Committee. Kenneth Douty, assistant director of Labor and Manpower of WPB's Textile Bureau, suggested that textile-machinery manufacturers who have manpower problems submit them to the nearest WPB local office, which will cooperate with War Manpower Commission. Extreme cases should be taken to Washington.

Representatives of other WPB divisions are taking up questions concerning the delivery of critical component parts such as castings, motors, anti-friction bearings, chain, etc., so that manufacturers will be better able to set up their production schedules. WPB will give textile-machinery manufacturers, who are having difficulty in obtaining basic materials to be used in the manufacture of their equipment, all assistance possible in acquiring such materials.

Members of the new Textile Machinery Industry Advisory Committee are: H. M. Bailey, Atwood Machine Co., Stonington, Conn.; Harry Butterworth, H. W. Butterworth & Sons Co., Philadelphia; Lee Sherman Cass, James Hunter Machine Co., North Adams, Mass.; David F. Edwards, Saco-Lowell Shops, Boston, Mass.; J. P. Franklin, David Gessner Co., Worcester, Mass.; D. L. Friday, Cocker Machine & Foundry Co., Gastonia, N. C.; Rufus Frost, Crompton & Knowles Loom Works, Worcester, Mass.; P. D. Howe, Universal Winding Co., Providence, R. I.; B. M. Jones, Rodney Hunt Machine Co., Orange, Mass.; Cornelius Lucas, Hermas Machine Co., Hawthorne, N. J.; E. L. Martin, H & B American Machine Co., Pawtucket, R. I.; S. F. Rockwell, Davis & Furber Machine Co., North Andover, Mass.; R. G. Ross, Barber-Colman Co., Rockford, Ill.; E. Kent Swift, Whitin Machine Works, Whitinsville, Mass.; T. H. West, Draper Corp., Hopedale, Mass.

—G. T. M.

costs. Therefore, the textile-machine builder should not underestimate the willingness of the industry to spend large sums of money for highly advanced equipment. This is not the time to turn out machinery to meet a price. It is the time for constructive imagination to have full sway.

EXPANSION? There is one advantage in any possible inability of the equipment manufacturers to meet demand. This is a restraint on the tendency of the industry to overexpand in response to the currently rosy hue of the textile-business horizon. Those of us who remember the after-effects of the large expansion in the last war can feel only gratitude for the fact that in this one the War Production Board has thus far kept us down to size.

There is an expansion pressure today. While much of the equipment listed by the mills was designated as being for replacement purposes, a very considerable amount of it was designated as being additional to existing equipment. Here and there, although not too commonly, mills told us of plans for new plants and extensions to old plants. Furthermore, only existing mills were consulted; and therefore the survey does not disclose any new enterprises that may be contemplated. Undoubtedly, as good business continues and as the availability of equipment increases, the expansion urge will increase also.

Now that we have considered the overall problem, let's take a close look at the detailed estimates for the various individual branches of the industry and the reports from individual mills to see what crumbs of more-specific information can be gleaned.

COTTON BRANCH. The cotton mills want to spend $324,001,000 for new plant and equipment, which is almost eleven times as much as they spent in 1939, the last year for which the U. S. Department of Commerce has released figures. This impressive postwar program is probably based on a trend toward spun synthetics, which is still the dominating factor in the current phase of textile evolution, and on fear of obsolescence and competition.

It is particularly interesting to note also that the cotton branch intends to spend over $10,000,000 in "employee-welfare equipment" alone. While study of the individual reports from mills shows that the biggest individual expenditure under this heading will be for housing, impressive amounts are to be spent for restaurants, lavatories, smoking rooms, and other items.

Under "general industrial equipment and buildings," the big items include plant extensions, new power plants, fluorescent lighting, and humidification; but there are also considerable machine-shop, some air-conditioning, and many other items to be found.

SYNTHETICS BRANCH. The low figure for throwing is probably the result of the large amount of equipment in the mills left over from the great days of silk, and of uncertainty as to future trends in such equipment for synthetics.

Study of individual reports on general industrial equipment from the synthetics mills discloses a particular interest in air-conditioning.

No attempt has been made, incidentally, to include many of the plans of the synthetic-fiber producers in this survey, since at the present time so much of their equipment is chemical, rather than textile. At a later date the picture may be vastly different.

In any future survey of this type, it may prove appropriate to include all tire-cord mills under "Synthetics Branch," but in this survey the old-

type tire-cord mills are included in the cotton branch.

WOOL BRANCH. Automatic looms are one of the items which show up prominently in the reports from the wool branch. Woolen mills will buy both frames and mules. Worsted mills plan to purchase whole new sets of drawing.

This section of the industry is going to invest rather extensively in improved power plants, and it is going to buy such things as fluorescent lighting, humidification, air-conditioning, and machine-shop equipment.

FINISHING BRANCH. Finishing plants will spend nearly as much for general industrial equipment as for production machinery. Much of this expenditure will be for the steam plant; but conveyors, air-conditioning, and lighting play parts, too.

In production machinery, continuous bleaching is a prominent item.

FULL-FASHIONED HOSIERY BRANCH. The thermo-setting property of nylon appears to exert an influence on the reports from the full-fashioned hosiery manufacturers, who want to buy some thousands of circular machines. At the same time these manufacturers propose to spend even more money—considerably more—for fine-gage full-fashioned hosiery machines.

This branch of the industry was the first to adopt true air-conditioning, and the reports indicate that its interest in such equipment continues.

CIRCULAR HOSIERY BRANCH. The circular-hosiery mills evidence a keen interest in links-and-links machines for fancies and 400-needle machines for women's hose. Of the latter, it is indicated, the circular and full-fashioned branches combined propose to buy thousands. Also prominent in the reports from circular-hosiery mills are wrap-reverse-plate machines.

KNITWEAR BRANCH. Millions of dollars will be spent for high-speed warp-knitting machines and all the necessary warping equipment and finishing equipment that go with them. This development is still in an early stage, and the reports fail to show the extent to which it will require new buildings, new industrial equipment, etc., but the needs for such complementary expenditures will undoubtedly be large.

The underwear and outerwear mills are going to buy many circular machines and some ordinary flat machines.

NARROW FABRICS BRANCH. Among the smaller branches of the industry, the one which produces narrow fabrics appears to be planning an appreciable increase in its plant and equipment expenditures.

MISCELLANEOUS BRANCHES. Relatively small as are the "miscellaneous" branches of the industry individually, in the aggregate they offer a large renovation and modernization program.

GENERAL EQUIPMENT. The general-industrial type of equipment bulks large in the figures for all branches. It totals over $74,000,000, exclusive of the miscellaneous branches and exclusive of the individual motor drives in all branches. It represents one class of equipment which may be in ample supply after the war. -

NEEDS OR WANTS? All these figures represent what the industry wants and intends to buy. They do not necessarily represent what it needs to buy; and it is generally believed that if the industry should undertake to modernize itself thoroughly, a very much higher figure would be involved.

CASE STUDIES. In the following pages TEXTILE WORLD offers a few case studies of the postwar plans of specific companies. An additional article gives an insight into an important new subject not previously discussed in this "mill check-up"—functional painting.

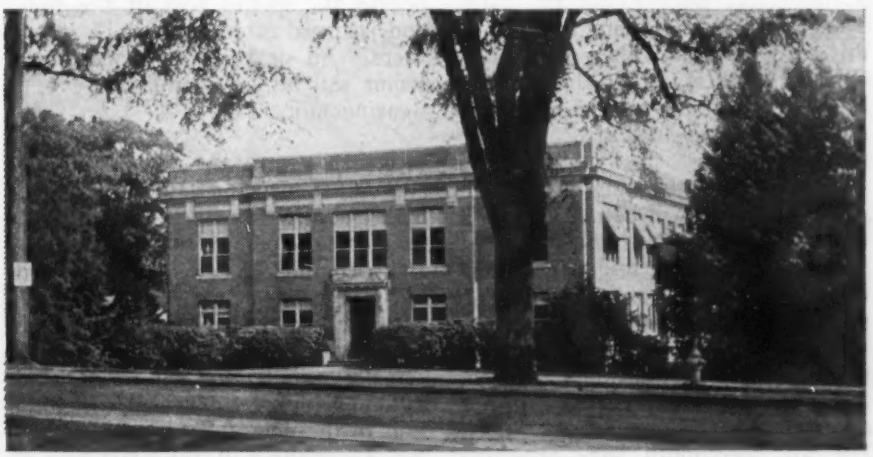
Cheney Brothers Begin MODERNIZATION Program

HIGHLIGHTS: Production Facilities Based on Market Survey—To Consolidate Mills Around New Boiler Plant—Modern Dyeing Equipment Being Installed—New Building to Be Erected—Some Old Units Abandoned—Looms On Order.

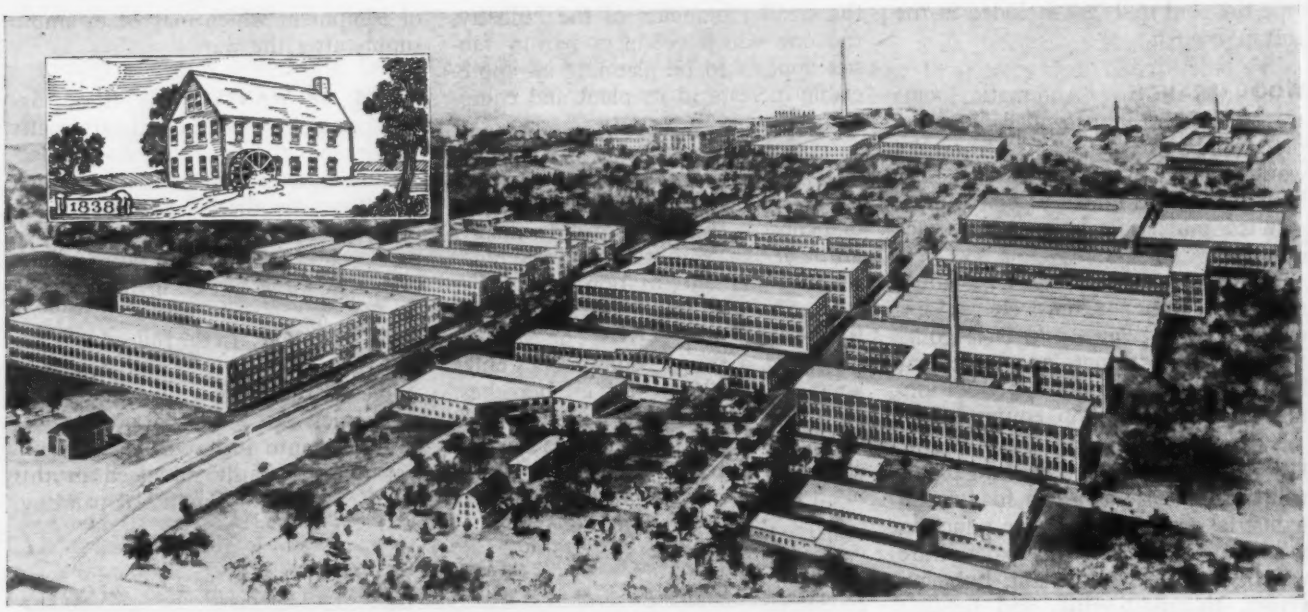
BASED ON A STUDY of their markets for several years, Cheney Brothers, Manchester, Conn., have made extensive plans concerning mill facilities needed. These plans are now being carried out in a comprehensive modernization program.

Studies on which the plans are based were started prior to the war, but work was interrupted due to inability to secure some machinery and equipment, because of war-production requirements. However, some parts of the program have already been completed and others started.

The first step in the plan, already accomplished, was the modernization of the boiler plant for generation of



Cheney Brothers administration building at Manchester, Conn.



View shows Cheney Manchester group at the start of current modernization program. Inset is a drawing of the original Cheney mill.

steam. The new plant has modern, high pressure boilers, with sufficient capacity to take care of all the mills. It replaces three separate boiler plants. The new plant is expected to result in a considerable saving in the cost of producing steam because of the efficiency of the equipment, the higher pressures on which it operates, and the fact that only one plant is operated, instead of three.

CONSOLIDATION. The second major step in the Cheney plan is the consolidation of the mills around the central boiler plant. In order to accomplish this, the old piece-dyeing, printing, and finishing mills, together with the boiler plant serving them, will be abandoned. The yarn-dyeing department, preparation department, and piece-dyeing department are to be rearranged and set up in a modern building which has partially been occupied by the yarn-dyeing department. Stainless-steel piece-dyeing and yarn-dyeing equipment is being installed in this new location. When completed, Cheney Brothers expect this unit to be one of the finest modern piece-dyeing and yarn-dyeing plants in the country.

The printing, steaming, and finishing departments will be moved into a new building which is to be erected south of the velvet mill. The final inspection, folding, and shipping departments will occupy one room of the velvet-mill building immediately adjacent to the new printing and finishing building. These changes are not expected to lessen productive capacity, but will accomplish large operating savings by reducing the number of square feet of building area occupied and by making a more streamline flow possible.

Another radical change which is to be made involves the broad goods weaving mill. As this mill grew, it became a rather conglomerate assembly of looms and equipment. The plan now being carried out has as its first step some major alterations in the No. 1 weaving mill, involving some extensive building changes, chief of which is the elevation of the second floor. Some of the present jacquard looms of suitable type will be moved into the new location. New, modern jacquard looms of the latest type, and new heads, are on order and delivery is expected before many months. These looms will also be set up in the new jacquard weaving department.

Modern monorail handling equipment for heavy beams will be installed as a part of the program. The designing and card-cutting department will occupy the second floor of this mill, and jacquard cards will also be stored there. All of the non-jacquard box looms will be moved into the No. 2 weaving mill.

MORE NEW LOOMS. According to current plans, the present single-shuttle high-speed looms will be moved onto the second floor of the No. 3 mill, and a completely new, modern layout of the very latest Crompton & Knowles automatic looms will be installed on the first floor. These looms are now actually on order and will be installed as soon as they are delivered. In addition to the new unit of looms in the No. 3 weaving mill, the latest type of high-speed warping, sizing, and automatic quilling machinery is being purchased.

Soon after the United States placed an embargo on silk and the raw stocks available for war purposes in the United States were exhausted, Cheney Brothers scrapped a large portion of their throwing machinery and moved the remainder into the present spinning-mill building. Rearrangement of machinery and equipment within the spinning mill has already been accomplished, and some of the latest long-draft machinery and latest-type spinning frames for the manufacture of spun yarns are now being installed.

With the modernization of the yarn mill, which should be completed before the war ends, the company expects to be in a competitive position to manufacture spun yarns from synthetic-fiber staple, mixtures of staple and wool, or other fibers. In addition, the mill has been set up so that it can produce high-quality, fine, worsted yarns.

Although no very radical changes are planned for the velvet mill, modernization does include the addition of some new finishing machinery and rearrangement of the layout of machinery in the finishing department in order to get a straightline flow of production. Some alterations of the velvet looms are to be made in order to improve their efficiency.

PAY FROM EARNINGS. The moves, new building, machinery, and equipment represent a large expenditure of money which has been approved by the board of directors of the company. Funds to be used are from earnings.

In addition to the physical plant

changes mentioned, Cheney's sales departments have been reorganized to fit into the modernizing program. The sales force, with the exception of the upholstery sales department, will move to new quarters in the fifteenth floor of the Empire State Building in New York city about the time this article appears. The upholstery sales department will remain at 509 Madison Avenue. Cheney Brothers expect this reorganization of the sales departments, coupled with a completely integrated, well-equipped modern mill, to put them in a position to be a leader in the industry.

POSTWAR STEPS
Already Taken by Mandeville

HIGHLIGHTS: Spinning Mill Will Revamp Nearly All Departments—Is Now Installing Winders—Plans Constant Flexibility—Employees' Comfort Guarded.

THE MANAGEMENT of Mandeville Mills, Carrollton, Ga., is not waiting for the end of the war. It is currently engaged on a modernization program aimed to keep productive equipment in top form to meet competition in the years immediately ahead. The plant employs 850 workers and operates 35,000 spindles on long-staple cotton for lace curtain yarns, and on specialty types of spun rayons.

Frank M. Kimble, Jr., president, has had his engineers at work studying the present equipment with an eye to making recommendations for the future. He is particularly anxious that each step taken leave the mill as flexible as possible, not committed too firmly to any one future course. At the present time Abbott winders are being installed, for which priorities were obtained on the ground that labor was saved which could be transferred to other productive jobs. The mill is 90% on war work.

For the immediate postwar period there are several steps planned:

First: Arrangement of opening and cleaning equipment will be undertaken with the installation of blending feeders and screen section to blend thoroughly and dust the cotton.

Second: Since the pickers have recently been modernized by being put on the one process system, it will be necessary to make only minor adjustments here. However, it is intended to add a return air condenser.

Third: Cards and drawing are to be worked over and partly rebuilt.

Other changes contemplate replacing present two and three-process roving frames with new 10 x 5 and 8 x 4 Whitin inter-draft and super-draft slubbers. About 50% of the present spinning is to be changed to Whitin long-draft, 240 spindles to the frame, 4-in. gage, 2½ in. ring, 8 in. traverse, with some frames of 204 spindles and some using 3½ in. gage. Individual motor drives will be used on practically all new machinery and in all cases the machines are to be placed to give ample working space for ease of handling and saving of labor. Old, small-package twisters will be replaced with Whitin high-speed, large-package frames.

Fluorescent lighting will be adopted, and ample intensity will be provided to eliminate eye-strain and glare, the layout being determined by final machinery locations.

No changes are contemplated at present in the humidifying equipment which is American Moistening atomizer system throughout, and has been found adequate. Neither are changes contemplated in the dyehouse, which is equipped with Franklin Process and Smith Drum systems for package-dyeing and is both modern and complete.

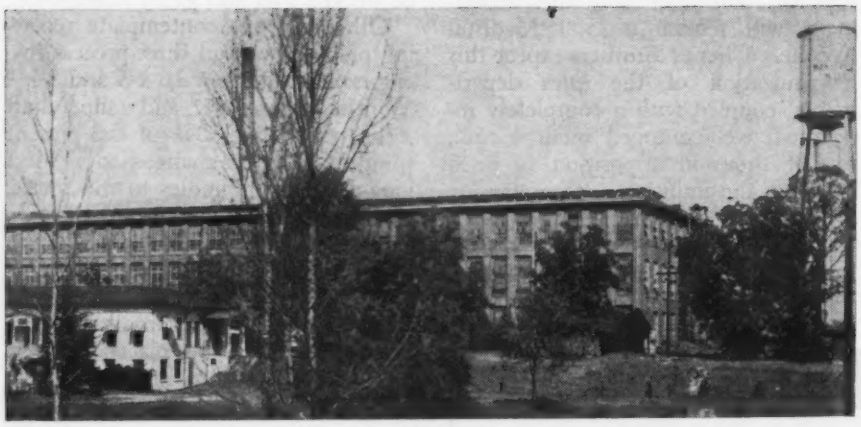
A new cotton-sampling room will be built and equipped with most modern lighting arrangements to make it possible to classify and grade cotton night or day. This cotton-sampling room will be part of a new office building which will provide space for the administrative staff.

Comfort of employees is being considered in plans for rebuilding rest-rooms and toilets, which are to have tiled walls and floors, built-up tile partitions, and modern fixtures throughout.

The village will not be affected by any immediate plans for postwar

Winders in No. 1 Mill.

More winders; three 140-spindle units just installed.



Mandeville No. 2 Mill, with office in foreground.

change. Streets are already well paved; there are 170 comfortable houses with all conveniences, including electric refrigerators; there are churches, schools, library, and parks. First-aid rooms have been provided in the mill itself.

Plans for the changes and full direction of the work are in the hands of Robert & Co., engineers, Atlanta, Ga.

Gotham Proceeds With PRODUCTION INCREASE

HIGHLIGHTS: Full-Fashioned and Circular Hosiery Machines on Order—Additional Plant Acquired—Canadian Unit to be Expanded—New F. F. Heel Produced, Based on Max Miller Patent.

GOTHAM HOSIERY CO., INC., in carrying out plans made before the war, and interrupted by it, now has on order additional fine-gage full-fashioned knitting machines and will enter into production of seamless hosiery, according to its president, R. E. Tilles.

The Gotham program is a continuation of plans originally started almost ten years ago which have been modified from time to time by new developments. It is based primarily on sales surveys and consideration of the markets in which Gotham will operate.

Mr. Tilles states that the first stage in the Gotham program which is still being followed was passed in the period 1938–1940. During that time it scrapped much of its old equipment, built a new and separate finishing plant, and began research development in the use of rayon in full-fashioned hosiery.

The fact that Gotham started working on the use of high-tenacity rayon in full-fashioned hosiery in 1937 and 1938 indicates that even before the appearance of nylon and the disappearance of silk, its management was considering use of rayon. Mr. Tilles says that developments particularly in regard to pretreatment of the yarn and finishing of the hosiery have encouraged him to believe that high-tenacity rayon will continue in full-fashioned women's hosiery even after the return of nylon. He further believes that the use of silk will be of relatively minor importance even when it is again available.

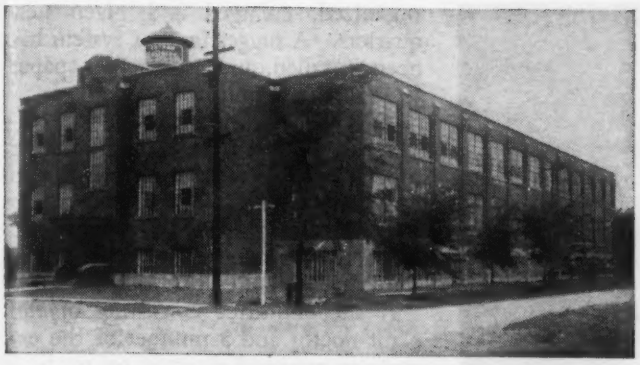
As a part of Gotham's expansion program the company acquired in March of this year the General Hosiery Co., Inc., of Fort Wayne, Ind. This plant has 54 fine-gage full-fashioned knitting machines and complementary equipment.

To increase further its production, Gotham has on order an appreciable number of high-speed 32-section full-fashioned machines which will be at least 51-gage, possibly finer. These machines will all have automatic welt turners, needle bars over 14 in. in width, and will operate at from 84 to 90 courses per minute.

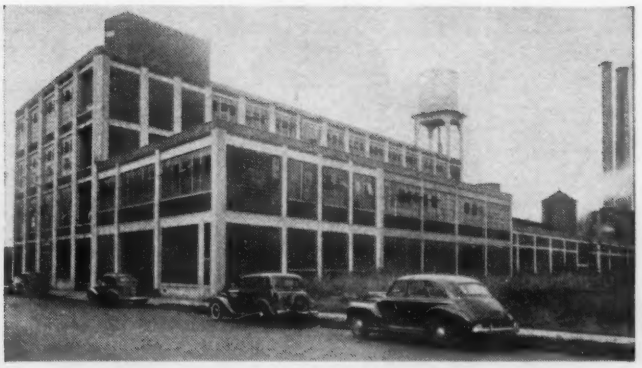
Gotham's Canadian plant, Gotham Hosiery Co. of Canada, Ltd. at St. Hyacinthe, Quebec, is to be expanded 50% in floor space and 100% in productivity. It will be at this unit that an installation of 400-needle circular machines will be made, in addition to installations in the United States.

NEW HEEL. Mr. Tilles advises TEXTILE WORLD that, according to present plans, the future Gotham full-

General Hosiery Co. plant acquired this year by Gotham.



Floor space of Gotham's Canadian plant is to be increased 50%; production, 100%.



This separate hosiery finishing plant at Philadelphia was built in 1938.

fashioned women's stocking will be knit all on one machine, but will be definitely superior to the round-heel construction now commonly employed. The Gotham stocking will employ an entirely new heel construction based on a patent issued to Max Miller and acquired by Gotham under an exclusive license.

The Miller heel contrasts with the round in that the wales forming the sole of the foot are at a right angle to the wales in the leg or boot. This is achieved by stopping the knitting of the needles at the instep while material is knit into the heel. It is believed that this heel will be superior even to the French heel made on leggers and footers, since it will do away with the little square tip which is characteristic of the French heel. Gotham is considering offering license of the Miller heel patent to other knitters.

Gotham expects to continue its policy of doing its finishing in a plant entirely separate from a knitting unit. This is a continuation of the policy which led to the building of a finishing plant in Philadelphia in 1938. This relatively new plant is considered ideally suited to handle the increased production expected. It has ample preboarding capacity for handling nylon when available again and employs both Proctor & Schwartz and Duo-Heat boarding machines to give it flexibility for handling different types of stockings. This plant employs a modern Link-Belt conveyor system, since it was found that a great deal of damage occurring to stockings during the finishing process was caused by handling.

Gotham plans to continue the use of its retail outlets only in New York city as a proving ground for its products to determine which of them should be developed extensively. These outlets have been valuable in providing information which points to consumer acceptance of the recently acquired Miller heel.

Rings around hosiery were knit to show that on Miller heel sole wales are at right angles to leg wales. Note contrast to round heel. Inset shows important details of Miller heel.

Alexander Smith Organizes A PLANNING SYSTEM

HIGHLIGHTS: Central Plans Committee and Subcommittee Studies Actually Form Operational Policy—Permit Men in Every-Day Contact with Problems to Advance Ideas.

"WHEN C-DAY ARRIVES, the mill that has completed and put into effect its postwar planning will be the leader in its field," states William F. C. Ewing, first vice-president and treasurer, Alexander Smith & Sons Carpet Co., Yonkers, N. Y.

Mr. Ewing, chairman of the Central Plans Committee for formulating and directing postwar plans, explained that while his company is now on war work and will continue to make its maximum possible contribution to the war effort, plans have been set up covering the postwar period. Planning involves consideration of V-day when contract termination will undoubtedly become effective. Then, plans have been projected ahead to C-day, the day when competition will again be effective—when the seller's market is over and buyers can again pick and choose among various suppliers' lines.

PLANNING COMMITTEES. It is practically impossible, in one of the largest woolen mills in the country, for any one man or any small group of men to prepare plans which will cover all

Plans for postwar. William F. C. Ewing, chairman of Central Plans Committee, checks over a number of the written reports covering suggestions for postwar operation of the largest carpet mill in the world.

phases of the company's activities. Accordingly, a central plans committee was set up consisting of four of the top executives. The purpose of this committee was to assign certain portions of the problem to various subcommittees, to guide and coordinate their work and to make sure that their various reports are in proper form for the president's consideration. Upon receiving the president's approval the reports are sent to the operating executives as approved plans of action.

A total of 35 executives and operating executives have been asked to serve on one or more subcommittees. No authority over operation of the company is granted to the subcommittees, but some of the plans suggested, and which have had presidential approval, have already been put into effect. The studies made, and these are handled by some twelve subcommittees, are confined to planning for the present and for the postwar period. Any person may be called on to assist in making the studies.

Several advantages are obtained in using the committee form of study. First, men actually in every-day contact with the problems involved are given a chance to advance their ideas. Second, each person serving on the subcommittee is given to feel that he is an active part of management. Such a plan of postwar study is well suited to any large organization, and many suggestions will be brought to light which might otherwise have been buried.

STUDIES MADE. One of the first studies to be made concerned the liquidation of war contracts. When V-day arrives, some of the Army and Navy contracts held by Alex Smith will be cancelled and others will be run out. This committee was asked to study the terms of these contracts, contracts with the company's suppliers of cotton yarns, dyestuffs, and other raw materials, not used by the company in peacetime, in order to avoid if possible any undue difficulty in liquidation.

A report covering the availability of raw material for postwar manufacture of carpets was made by another subcommittee. How can the company be sure to have enough carpet wool, cotton, jute, etc. for postwar operation? What raw materials are likely to be short? Are there acceptable substitutes? Are there any other suggestions? These are a number of questions considered by this subcommittee.

Labor was another problem assigned for study. Consideration of a postwar plan which will handle returning service men and also give employment to existing employees is of utmost concern. Active experimental work on the handling of returning service men has already been underway, as the result of the report of this subcommittee.

Personnel was another problem considered as a subcommittee assignment. Some suggestions made have already been put into effect. For example, the personnel department has been reorganized, enlarged and given new quarters. A suggestion-box system has been installed, and a plant newspaper is now being published.

Training of salesmen and of employees was considered by another subcommittee. The study made also included coverage of such study courses as Job Instructor Training, Job Methods Training, and Job Relations Training.

A subcommittee consisting of the plant doctor and a number of the executives prepared a report on medical services in the mill. This study covered ways and means of handling compensation cases, of handling physical examinations of all employees, of the advisability of having an X-ray machine, and many other subjects. Present results of the study are to be found in changes made in relocating the medical room next to the personnel department.

Reconversion was studied and reported on by the superintendent and the engineering departments. The mechanical operations of changing from war to civilian production were covered. The time element was plotted and a plan prepared whereby reconversion operations may be started in any one section of the plant whenever a war order is cancelled.

Standardization of product was another subject considered by a subcommittee. Standardization of such items as beams, warp yarns, face yarns, etc. were considered from the standpoint of reducing the time that a loom or a processing machine is stopped for a changeover in yarn or fabric construction.

Such subjects as advertising and promotion, public relations, merchandising, and postwar markets were each studied by a separate committee. Results of the studies are already apparent because a number of the recommendations have already been placed in action.

A merchandising plan, a result of the study, is now in operation whereby a direct selling plan will be in full operation in three years after V-day. Postwar markets have been evaluated, buying habits studied, and population changes plotted. The results of this study are shown in the realization that the postwar market demand will be a 53% increase over the average volume from 1937 to 1941.

The series of postwar studies by Alex Smith were first started about 1½ years ago at a time when a large number of the executives were not actively engaged in production. This series of studies actually forms an outline of operation, effective on V-day and will carry the company through to C-day.

Mills Will Consider New TRENDS IN LIGHTING

By EARLE MAULDIN
Southern Editor
TEXTILE WORLD

HIGHLIGHTS: Workers Accustomed to Good Light—Pace Set by War Industries—New Types—Maintenance Important.

Annual Mill Check-Up Section

WAR WORKERS COMING BACK into industry from machine shops, airplane factories, and other assembly lines will not "demand" better lighting. They may not even be conscious of the fact that the foot-candle intensity has dropped from 50 or 75 down to 15. They will do their best work, however, if lighting conditions are somewhat comparable to those with which they have become familiar.

FIT LIGHT TO TASK. Proper light calls for the solution of several problems; and the trend is to take these questions up, analyze them, and fit the lighting scheme to the seeing task, rather than arbitrarily to adopt a certain fixed level of illumination and let it go at that. For instance, there should be first of all sufficient quantity of light. Then the direction of light in relation to the work must be investigated to eliminate both direct and reflected glare. General distribution plus spot-lighting in some cases should be investigated; and lastly, shadows should be minimized.

New types of fixtures will come in for investigation and experimentation. New materials of construction are being tried. Designs are being subjected to field tests even now, and sizes, shapes, and colors are all undergoing the acid test of service. Users will want to know the outcome of these trials, and the trend may shift from time to time; but it is safe to assume that in the 80% of the approximately 180,000 industrial plants throughout the United States still inadequately lighted, fluorescent lamps will lead the parade.

An investigation of several well-lighted mills gives interesting case records. For instance in spinning rooms there is a tendency to lower the mounting height to as low as 7½ ft. and place the lights in the working aisles in order to avoid interference with cleaners operating over the spinning frames. Continuous lines of fluorescent lamps are used the full length of the spinning frame, giving 40 to 50 foot candles on the working plane. The layout in the weave room follows machinery location, but foot-candle intensity varies with the type of cloth being produced. At the slashers, one light is used directly above the loom beam at the delivery end and two on each side in the aisle between machines. Similarly one lamp is used over section beam, giving 60 to 70 foot candles at this point on the warpers, one in the V and one on each side. This speeds up production by shortening the down-time of the machine. Throughout the entire mill, the trend, as illustrated here, is to fit the light to the task. In this must be considered all such factors as quality, quantity, and direction of the light.

A recent installation in a large hosiery mill in the South contains a few features that might be considered as pointers of the way. In the looping department a standard industrial fixture was placed well above the heads of the operatives, giving 50 foot candles on the work. But small supplemental lamps were installed close to and directed to the seeing task, and the foot-candle intensity was raised to 150. This proved highly satisfactory, and the principle involved is as stated before—fit the light to the task. In this same mill final inspection is being carried out under a light intensity of 200 foot candles.

MAINTENANCE. The efficiency of any lighting system depends on maintenance as well as design. A normal depreciation is to be expected and should be taken into consideration in designing the system, but it has been found that as much as a 50% drop in efficiency is sometimes caused by neglect. Management realizes this perhaps better than in the past, and regular maintenance crews have been organized in some mills. Their special object is to clean lamps and fixtures, replace faulty tubes, check voltages, check wiring connections, and sometimes clean walls and ceilings.

Fluorescent lighting in one of the industry's newer mills.

FUNCTIONAL PAINTING

for Safety and Employee Comfort

By HAROLD E. REED
Assistant Editor,
TEXTILE WORLD

HIGHLIGHTS: Specification Book Covers Painting Instructions for Every Department in Mill – Safety Color-Code Used to Prevent Accidents – Lint, Oil, and Grease Camouflaged by Method of Machine Painting.

PLANT PAINTING rates high among the postwar plans of textile mills, according to recent research surveys conducted by TEXTILE WORLD; and other estimates indicate national sales of paints in 1946 will amount to $740,000,000, as compared with $453,000,000 in 1940. Postwar interest in painting is evident from these figures. The textile industry is planning to utilize its share of paint, which is considerable because, using number of employees as an index to industry size, it is the second largest industry in the country.

Functional painting, and most of the mill painting in the postwar period will be functional, involves many factors never before considered. That is, a painting program is no longer a routine maintenance matter, but takes into consideration such factors as employee safety, reduction in employee fatigue and eye strain through the proper selection of colors, and the creation of a pleasant working environment for the employee by the psychological effects of color. In other words, under functional painting employee comfort and safety are of prime consideration.

SUCCESSFUL PLANT PAINTING PROGRAM. A practical program of functional painting, and perhaps the only completely planned program of its kind to be found in a textile mill in this country at the present time, is that prepared and executed by Marshall Field & Co., Manufacturing Division, Spray, N. C. This plan was developed by the engineering department of Marshall Field working with the cooperation of Faber Birren & Co., New York, who are specialists on colors.

As the result of an extensive study of the manufacturing division (consisting of ten mills, the general offices, and the Fieldale YMCA), a book of specifications and painting standardization was developed. This book covers each mill and specifies the type and the color of paint to be used in each room. Diagrams are contained showing the different color schemes for painting designed for offices, average working spaces, spaces where working conditions expose the walls to excessive oil, storage spaces, wash rooms, and machinery.

Sections of the book are devoted to instructions covering the proper preparation of the surfaces to be painted. Such items as firedoors, windowsash, handrails, tanks, ventilators, etc., are covered.

Safety colors and symbols, as outlined in the safety color-code for textile mills, presented in the May issue of TEXTILE WORLD, are specified and suggested points of application about mills are outlined.

Standard pipe-identification colors are specified for marking electric conduit pipes and for pipes carrying water, steam, air, and chemicals. Legends as set forth in the American Standard Codes are used for identifying piping.

Included in this book are color cards showing the color of every paint specified, the number of the paint, and the paint manufacturers furnishing each color.

Finally a chapter is devoted to fire protection, safety, and housekeeping precautions which are aids in reducing fire insurance rates.

Long and involved clerical work and personal supervision of minor details involved in the painting of a room have been eliminated through the use of the painting standardization and specifications book. The engineering department has only to specify that a certain room is to be painted; details will be found in the specification book.

The painter then refers to the page in the book covering the mill and the room in question. Given will be the color scheme; data on whether the room is exposed to fungi, heat, vapor, moisture, or fumes; the type of paint, whether an oil-base or a synthetic-base paint is to be used; and the finish, such as gloss, flat, or eggshell. Contained is all the information required for the painter to complete his work.

COLOR FUNCTIONS. In selecting interior colors such factors as mill location, plant construction, manufacturing operations, educational background of the employees, and similar factors must be considered. Consequently, the colors specified for one mill may be entirely different from colors best suited for another mill.

Where high air-temperatures are encountered, as in the South, colors should be of a cool appearance. Colors must be grayed, otherwise they will attract the attention of the employee. Dados are of darker colors than the upper walls in an effort to hide oil marks and grease marks which are frequently found on the lower sections of walls.

Glaring colors which are hard on the eyes and cause employee eyestrain must be avoided.

Generally, color should be confined to those rooms where large numbers of employees are working.

Another purpose of color, especially when used for machinery, is for camou-

flaging. Lint and fly are always prevalent in textile mills. Light tan colors have, in some instances, been found to be excellent for making less evident lint and also oil and grease which collect on textile machinery.

Colors chosen for machines should be such that interest is focused at the working parts. Also, they should not make the machines appear huge in size nor should they hide them completely so as to offer an obstruction hazard to a worker.

COLOR SCHEMES. Basically, all color schemes used throughout the manufacturing unit at Spray are covered by one of four standardized plans.

Color-Scheme A applies to average working spaces where a cool working environment is desired. End walls are colored to give visual eye-relief. Colors are grayish in tone to avoid distraction and to camouflage soil, dust, and lint. Ceilings, side walls, and windowframes are painted white.

Scheme B is for working areas exposed to greater dust and oil deposits. A blue-green tone which has been grayed so as not to be conspicuous is usually specified. Dado is a deeper color to hide oil spots.

Scheme C is used for areas where only a small number of employees work and for storage spaces. Walls and ceilings are white and a dark gray is used for the dado.

The fourth color scheme, that for large offices, has been standardized on a blue-green color paint. Private offices may be painted in blue-green, white, ivory, or pale gray, as desired.

Washrooms have been standardized as to color. Blue paint is used for the men's room and rose paint is used for the women's room. These colors are bright and form a contrast to colors found throughout the working areas of the mill. Such a contrast tends to reduce eye fatigue for the period of time they remain in the room.

Specifications have been worked out for painting machinery. Colors specified are usually gray or blue. Safety color-code colors are used about machines to indicate hazards. These colors, because of the visual message they must convey, are bright.

APPLICATION AT MARSHALL FIELD. A trip through the manufacturing division of the Spray units of the Marshall Field mills will reveal that the selection of color, based on the individual conditions prevailing in each mill room, has been judicious.

Painting is functional as each color is selected for that part of the room, or machine as the case may be, to serve a specific purpose. This purpose may be for safety, in accordance with the safety color-code, it may be for hiding oil and fly on machines, or it may be for employee benefit by creating better and more pleasant working conditions.

SAFETY CODE. Extensive use is made at Marshall Field of the safety color-code introduced recently by Du Pont. This color-code provides a visual warning to workers by identifying exposed hazards about textile mills, and is, incidentally, an advanced step based on three-dimensional seeing. Color symbols used are shown in the accompanying chart.

Practical applications of the safety-code principles have been made wherever possible in the mills. Examples are shown in the illustrations appearing on pages 98 to 101.

An outstanding example of functional painting, especially from the standpoint of safety, is to be found in the compressor room of the finishing plant.

Motors and compressors are painted a tan enamel. This color offers a clear machine outline, and, at the same time, camouflages oil and grease which may collect on the equipment. The waste receptacle at the end of the black walk is also painted tan for the same reason.

Machine guards encircling the compressor crankshafts are tan, but the rims of the driving pulleys are painted alert orange. In the color-code alert orange identifies injurious hazards.

Sprinkler water-pipe connections are painted red to identify the pipes as fire-protection equipment. One of the compressors supplies water pressure for the sprinkler system, while the other supplies air for various services.

Walls and ceilings are painted a white enamel, gloss finish, while the dado is painted dado gray.

Application of the safety color-code to the shipping platform involves painting the edges of the platform with a high-visibility yellow which is used for marking obstructions. Platforms, raised projections, overhead projections, and edges of stairs are often marked with high-visibility yellow to provide visual warning to employees.

The dyehouse of the blanket mill illustrates additional applications of high-visibility yellow. Note in picture that overhead handling equipment is so marked. The post carrying the fire hose has been marked with fire-protection red. Ceilings and upper walls are painted with a white enamel gloss, while the dado is painted with dado gray.

Obstructions on a slasher in the blanket mill are painted with high-visibility yellow, along with overhead

Textile Mill Application of Colors and Symbols Used in Safety Code

High Visibility YELLOW

Trucking equipment, conveyors and aisles at hazard points, edges of loading platforms and pits, railings, low beams, floor pan edges, aisle obstructions, protruding parts, curbins, dead ends, stairway approaches, floor level changes, chain hoist blocks, risers of off-standard steps.

Alert ORANGE

Exposed parts: pulleys, gears on pickers, looms, cutting devices, and shears.

Interior surfaces of: electrical switch boxes, fuse boxes, power boxes, machinery guards.

Safety GREEN

To identify: first aid rooms, stretchers, cabinets for gas masks, cabinets for respirators, cabinets for medical supplies, safety showers for chemical burns.

Fire Protection RED

Fire protection equipment: extinguishers, hose connections, apparatus, alarm stations, fire hose, hydrants, fire doors, fire blankets.

Precaution BLUE

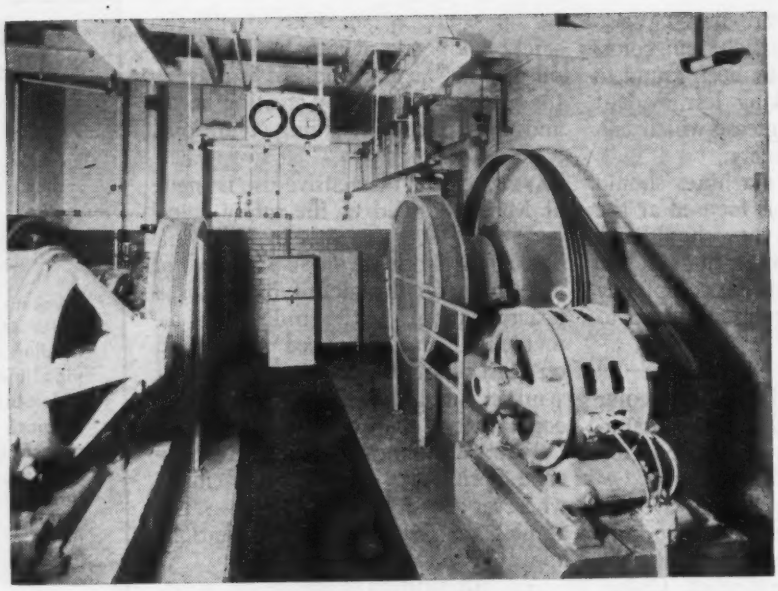
Electrical controls, valves, dryers, scaffolding, vats, boilers, compressors, tanks.

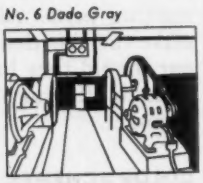
Use blue symbol to prevent operation of: cards, frames, looms, pickers.

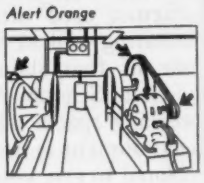
Traffic WHITE

Traffic controls, storage areas, waste receptacles, aisle markings, corners, floor areas immediately surrounding waste receptacles.

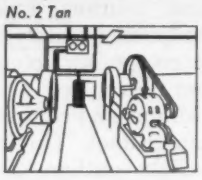
Compressor Room in Finishing Plant, Spray, N. C.

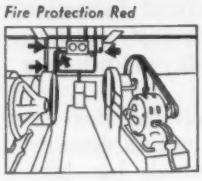


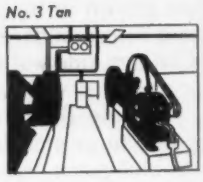




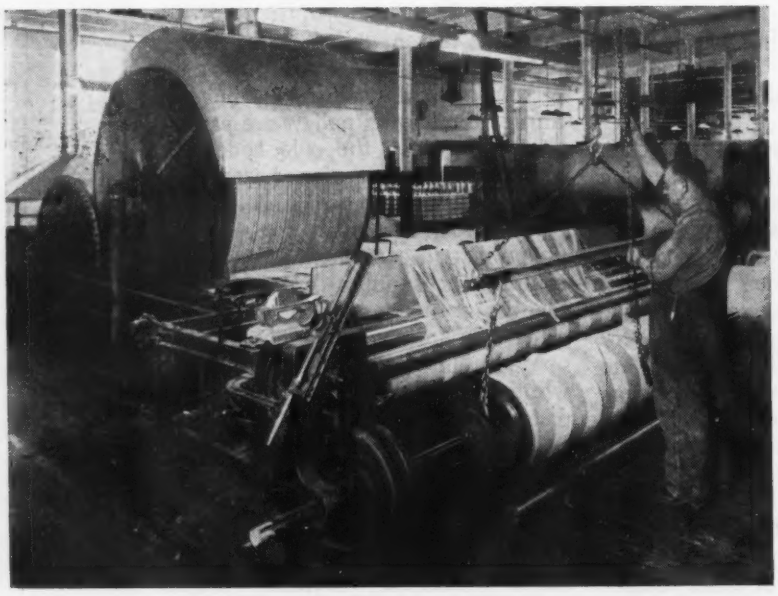
"The showplace of the plant" typifies the compressor room because it represents complete acceptance of the safety color code and the principles of functional mill painting, as outlined.

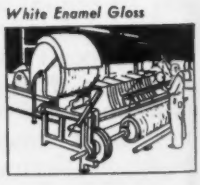


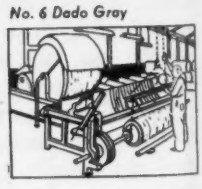




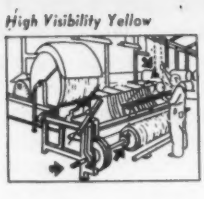
Warp Preparation Room of Blanket Mill, Draper, N. C.

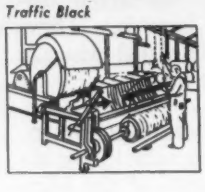


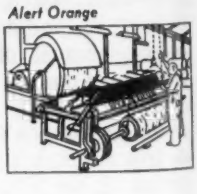




The painting of this slasher represents direct application of the safety color-code. All overhead handling equipment and obstructions are painted in high-visibility yellow for identification purposes.



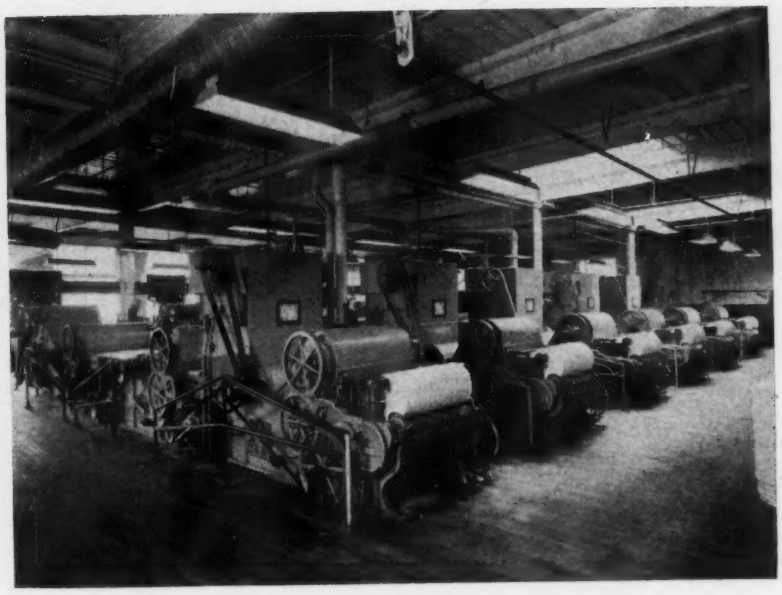




handling equipment. Note that the 18-in. high end-shaft on the take-up end is painted in high-visibility yellow. The flap guard, shown in a raised position, has its under-surface painted an alert orange to indicate the hazard offered by take-up rolls. Walls and ceilings are white enamel gloss; the dado is painted dado gray.

MILL PAINTING. Functional painting of walls and ceilings, as carried out in the various plants, involves the use of color for psychological effect on employees. The picker room in the towel mill is an excellent example of this type of painting. Pickers are painted a tan color. The base, or the

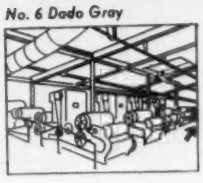
Picker Room in Towel Mill at the Fieldale, Va. Plant



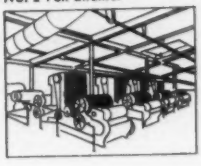
White Enamel Gloss

Penetrating Wood Finish

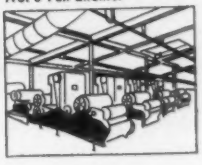
No. 6 Dado Gray



No. 2 Tan Enamel



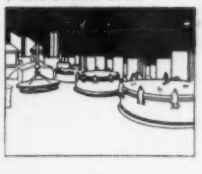
No. 3 Tan Enamel



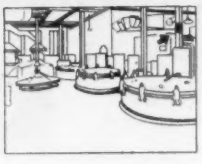
Painting at this plant exemplifies that for safety combined with functional mill painting. Outstanding is the choice of suitable colors for machinery to camouflage collected oil and fly.

Dye House of Blanket Mill, Draper, N. C.

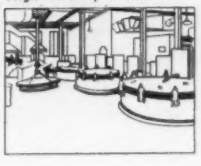
White Enamel Gloss



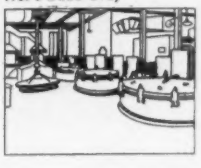
Fire Protection Red



High Visibility Yellow



No. 6 Dado Gray



Painting for safety is very much in evidence in this room. Lids of the dye machines are frequently left resting on the floor and present a tripping hazard to employees unless sharply identified.

lower part of the machine, is painted with a dark tan, while the upper part is painted with a lighter shade of tan.

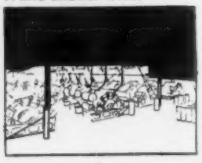
Alert orange is used for painting the inside of machine and gear guards. If an operator attempts to start a machine with the guard off, the orange-colored guards will act as a warning signal.

Ends of guard-rails protecting the driving belts are painted with high-visibility yellow. Ceilings are painted white enamel gloss.

The carding department of the towel mill has the wall at one end painted a blue-green color. Dado is a blue-green enamel. Walls on the other sides and the ceilings are painted a white enamel gloss.

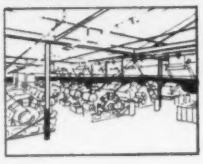
Card Room of Towel Mill, Fieldale, Va., Shows End Wall

White Enamel Gloss

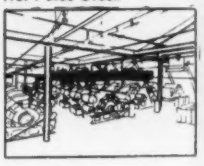


Penetrating Wood Finish

No. 3 Blue Green Enamel

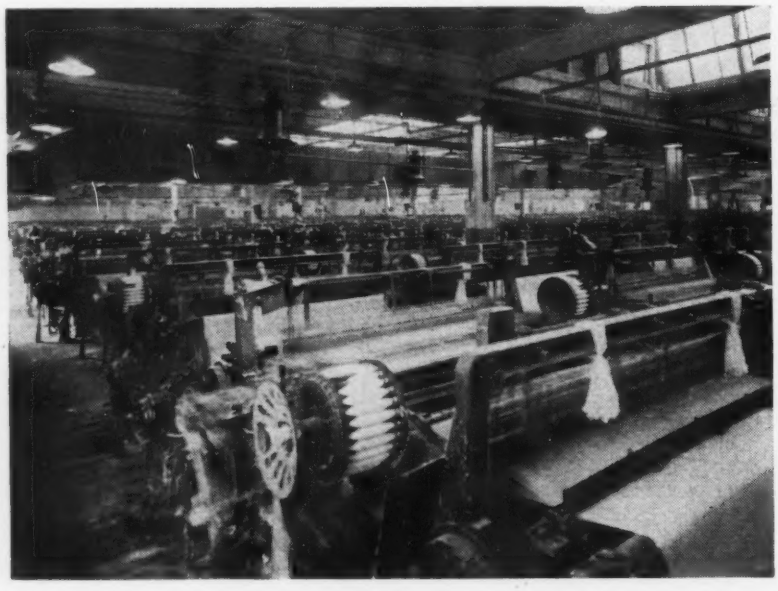


No. 1 Blue Green

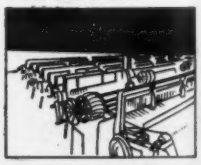


Color scheme for cards and roving cans in this room has not as yet been determined. South end wall is painted blue-green, while other walls are white. Use of color on only one wall offers a pleasing contrast.

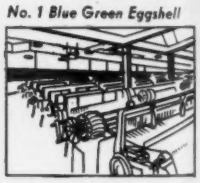
Weave Room of the Blanket Mill, Draper, N. C.



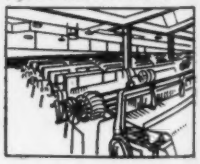
White Enamel Gloss



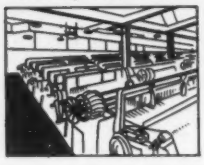
No. 1 Blue Green Eggshell



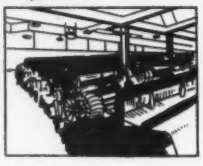
No. 2 Blue Green Enamel



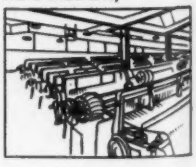
Penetrating Wood Finish



Draper Green



No. 6 Dado Gray

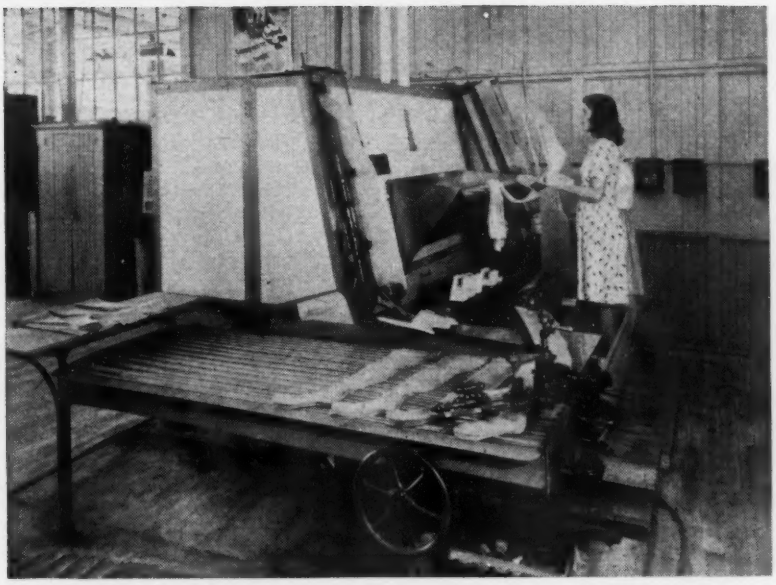


All looms in this room are painted in Draper green. The upper end wall is painted in blue-green and offers eye-relief to the operators. The white enamel gloss ceilings and ducts give good light reflectance.

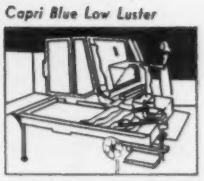
Psychological reasons dictated this type of painting. The room is very long, but when utilizing a different color for one wall, the room does not appear to be so long as it actually is. Employees who have to do much walking about the card room find they are not so tired as formerly, while actually they have walked the same distance.

The same painting scheme as carried out in the card room is used in the weave room of the blanket mill with the exception that slightly different shades of blue-green are used. A light blue-green paint is used for one wall and a medium blue-green paint employed for dado. Other walls, the ceilings, and posts are painted a white

Boarding Machine in Hosiery Mill at Fieldale, Va.



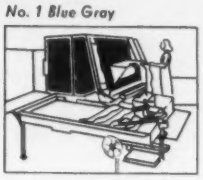
Capri Blue Low Luster



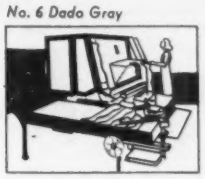
Use of a Capri blue represents a distinct departure in color at Marshall Field. This color was confined to the boarding and drying room where it was found to be psychologically the best for operators.

Penetrating Wood Finish

No. 1 Blue Gray



No. 6 Dado Gray



Office Room in the General Office, Spray, N. C.

Walnut Finish

No. 1 Blue Green Eggshell

White Eggshell

This color scheme is suitable for most large offices where a group of employees work. Executives having private offices are offered a choice of color schemes, basic colors being blue-green, pale gray, ivory, or white.

All photos courtesy of Du Pont.

enamel gloss and the dado a dado gray. Looms are painted Draper green, the standard color for Draper automatic looms.

The hosiery mill represents a distinct departure in the use of color; a Capri blue of low luster is used for the upper walls with dado gray for the dado. Ceilings are a white enamel.

Floors of some manufacturing areas are treated with Du Pont penetrating wood finish as a means of preserving the floor surface and to help cleaning.

The general office has white eggshell ceilings, blue-green eggshell walls, and the woodwork trim which forms the dado is stained in walnut finish. Desks are in walnut finish.

Modern MILL-VILLAGE HOUSES

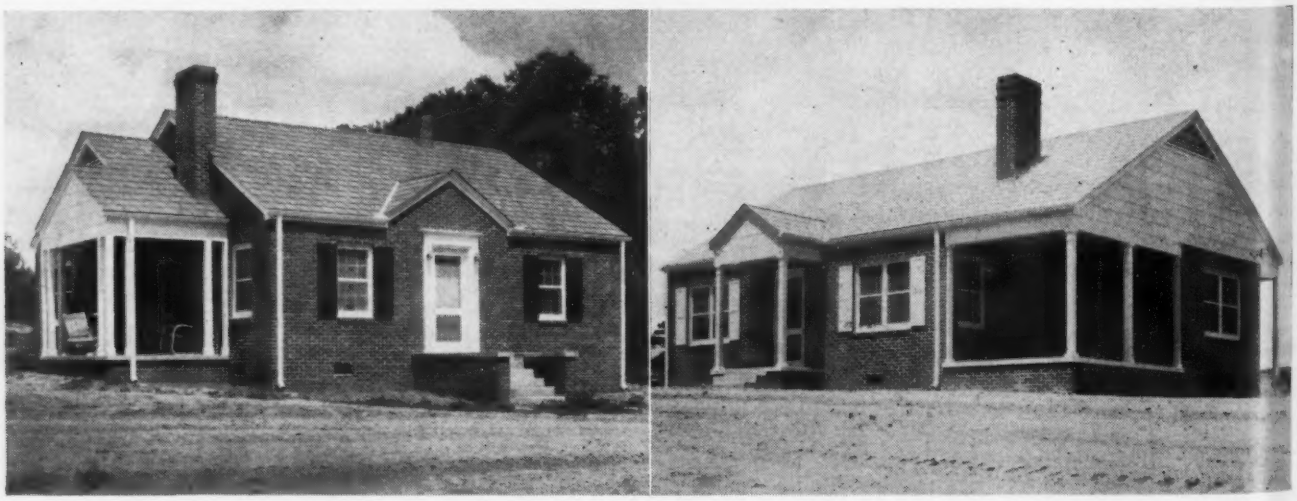
Show Trend Toward Individuality

HIGHLIGHTS: Fifty-Five New Houses Built Near Clemson for Key Employees of Rayon Tire-Cord Mill—All of Brick Construction—Conveniences Include Electric Stoves, Hot-Water Heaters, Refrigerators, Tiled Bathrooms.

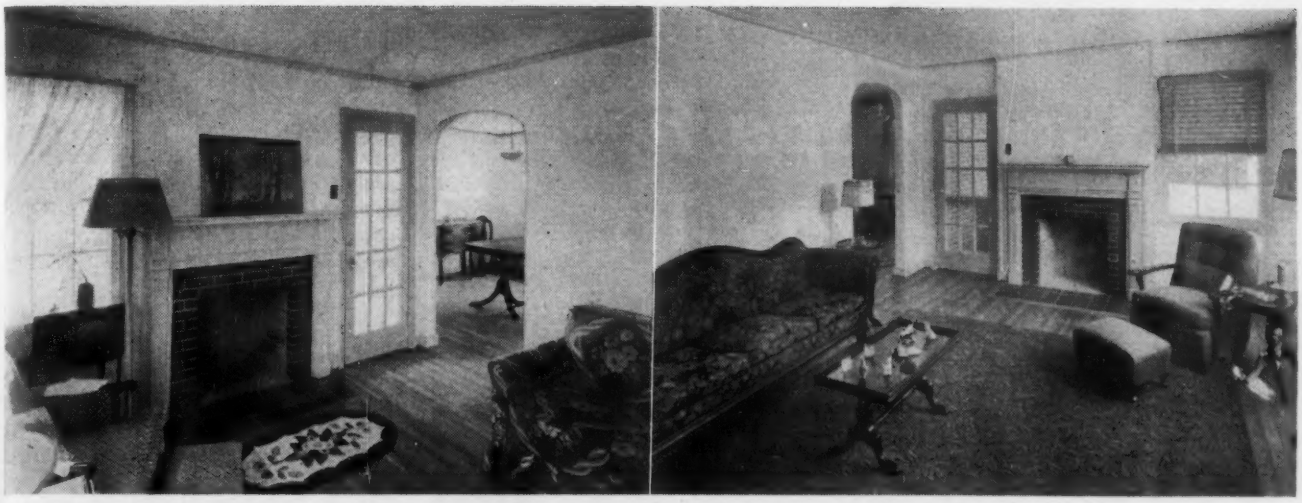
Annual Mill Check-Up Section

INDIVIDUALITY OF DESIGN, which can be seen in the views on this page and next, is outstanding in the newest textile-mill village in the country—the village near Clemson, S. C., to house key employees of the newly erected Deering, Milliken tire-cord plant.

Each of the 55 houses in the village was individually designed by architects Pickell & Pickell, of Greenville, S. C. Building was by Daniel Construction Co., also of Greenville.



Exterior views here and at top of page show individuality of design



Variation is achieved in these houses by changing position of dining room in relation to living room.

At the time these views were taken, individual landscaping around each house had not been started.

The houses are located at a sufficient distance from the mill to enhance further the impression of a suburban residential section.

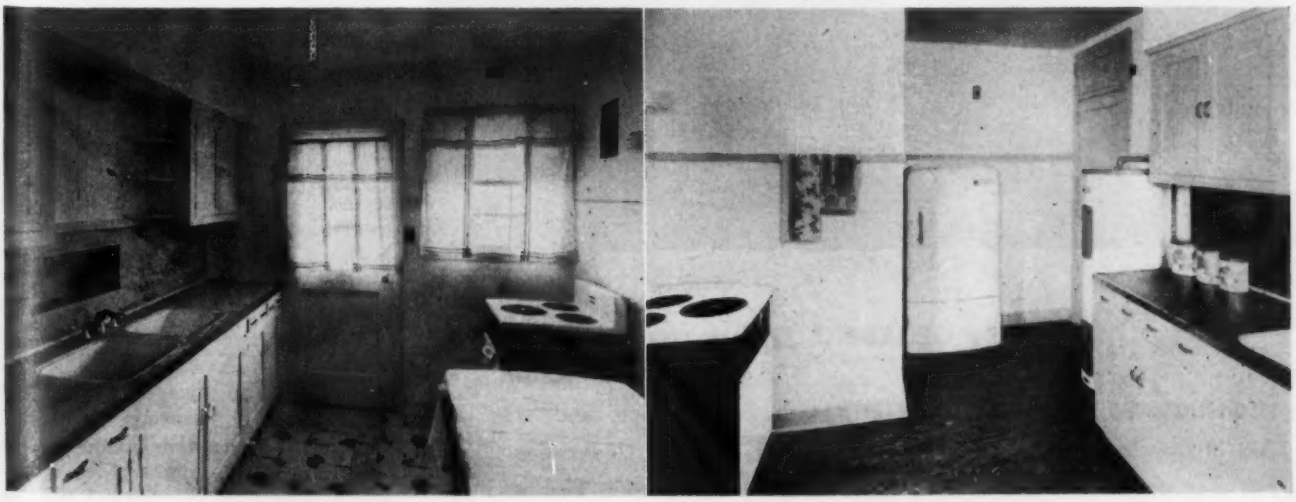
INTERIOR FEATURES. In addition to the interior features seen here, each house has an oil space heater, tiled bathroom with built-in medicine cabinet and tub, built-in ironing board, and insulation.

All of the houses are of brick exterior and plaster interior. Each house has a fireplace, hardwood floors, linoleum in the kitchen, modern lighting fixtures, and numerous electrical outlets.

Water and sewage systems are incorporated with those of the mill and are separate from the town of Clemson.

Priorities for the houses (and mill) were obtained due to the urgent military need for rayon tire cord.

This third variation of living-room design also illustrates absence of overhead lights. Note outlet, one of several, for floor lamps.



New electrical appliances are features of the kitchen—stove, water heater, refrigerator.

Yarn Properties Point Way To NEW NYLON FABRICS

By GEORGE J. GROH

HIGHLIGHTS: Prewar Experiments, Hosiery Experience, and War Uses Aid in Development of Woven Nylon Fabrics—Sheers, Underwear Cloths, Pile Constructions Foreseen—Dry Heat Finishing Stems From Preboarding—Thermoplastic Properties Permit Permanent Settings.

IN THE DEVELOPMENT of nylon fabrics, yarn properties must be taken into consideration. Because of the wide-spread public acceptance of nylon in women's full-fashioned hosiery, there has been a natural tendency on the part of the public to expect the same relative value in every other fabric use. Fabric development which is based principally upon the substitution of nylon for other fibers in a given construction does not take into consideration the properties of individual fibers, and their relationships to each other. The study of these relationships should be undertaken not only for the purpose of harmonizing the working properties in the mill, but also in order to take advantage of the properties in obtaining new fabric effects.

A great deal of basic information regarding nylon has come from hosiery developments.

During early experiments, it was found impossible to make nylon stockings free from wrinkles. The final solution of this problem was preboarding, which merely means that prior to scouring and dyeing stockings were placed upon a form and subjected for a definite time to a specific temperature under saturated conditions of moisture. In other words, the stocking fabric was in this manner stabilized against distortion of stitch by subjecting it to conditions higher in temperature than those which would be subsequently encountered.

By applying this same principle to the manufacture of nylon seamless stockings, these stockings have been made to fit to a degree never before achieved in the seamless industry. Seamless nylon stockings make an interesting and practical addition to the hosiery line.

SETTING WOVEN FABRICS. Preboarding had a pronounced effect upon hosiery constructions, and it is expected that a similar treatment to woven and other knitted fabrics will have similar far-reaching results. This ability of nylon to take a set—together with its other properties of high strength, fineness, and natural elastic recovery—will undoubtedly exert considerable influence upon hosiery styles, both full-fashioned and seamless. With the range of deniers which eventually will be available in the postwar period, it can be expected that there will be a large variety of styles, types, and weights of hosiery to meet all individual needs.

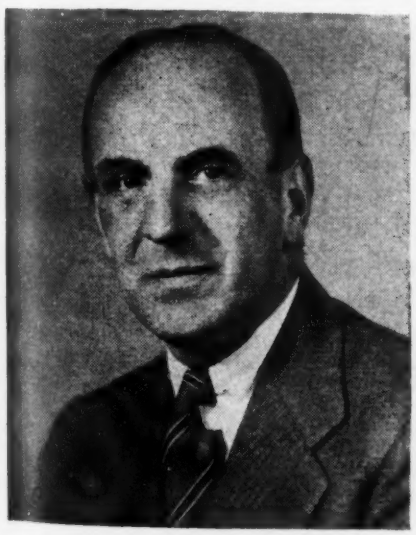
Before the war the development of woven nylon fabrics by the trade was undertaken only in a limited way, and all work of this kind was stopped as

soon as nylon was needed for military purposes. However, during this short period, a few fabrics were developed in which the properties of nylon seemed to contribute the greatest benefit.

Because of the fine deniers in which nylon could be spun, the cleanliness of the filaments, and the high strength of the yarn, it was considered a possibility in sheers. Fabrics of this type have been made from 20, 30, and 40 den.; and from the results obtained, there seems to be no reason to doubt that, with further development work, satisfactory fabrics of this type can be manufactured. It should be kept in mind, however, that the finishing of these fabrics must be carefully done in order to bring out the best possible effects.

Probably the most development work by mills was done on brassiere fabrics. Different types were manufactured, including plain and twill weaves and marquisettes. The advantages of nylon in these fabrics are lightness of weight, smoothness of surface, high strength, easy washing and quick drying, together with dimensional stability. This latter point is entirely dependent upon which processing method is used to obtain the best possible set.

Considerable work was also done in foundation fabrics. In these fabrics, nylon contributed a great deal toward lightening the weight. The advantages also in easy washing and quick drying were particularly valuable. It is expected that further development of these fabrics will be in the direction of more open weaves for greater comfort.



George J. Groh is in charge of nylon-fabric development for the Du Pont Co. The article appearing here is an abstract of a paper he recently presented before the American Association of Textile Technologists.

Some development work done on these fabrics involved mixtures of other yarn with nylon, but in some cases the percentage of nylon used was too small to be of any help whatsoever. The technician should carefully evaluate the contribution made by each fiber going into the fabric. In terms of consumer satisfaction, it is obvious that, if a fabric is composed of nylon and cotton, the advantage of nylon for quick drying is lost.

Silk was formerly used extensively in finely woven underwear. It was only natural, therefore, that nylon should be tried out in slips, panties, gowns, and other related fabrics. This work was not carried very far; but some experiments, both in all-nylon and in nylon-rayon combinations, have given real promise of future success.

NYLON TRICOT. When underwear fabrics are considered, it is apparent from the small amount of work done that tricot fabrics have a definite place. Experimental fabrics made from nylon yarn as fine as 20 den. have indicated possibilities of strong, sheer underwear fabrics, with the same dimensional stability and shape-retaining properties possessed by nylon hosiery. The large variety of possible constructions which can be made on a tricot machine will undoubtedly suggest many new ideas and fabric uses.

Some work was done to develop nylon in men's neckwear. Here was another field where silk had been used to a considerable extent. It was visualized that nylon might be used in neckwear because of its strength and abrasion-resistant properties. Borrowing again from hosiery experience, it was believed that properly constructed fabrics could be permanently set to minimize wrinkling and that they might possess advantages in washability.

The use of nylon in velvets and other pile fabrics was first considered from the standpoint of replacing silk as the backing yarn in a transparent velvet. Later, it was tried also as the pile yarn with the thought that the pile could be so set as to render it crushproof. Some experiments were conducted and samples made which seemed to indicate that an inherent crushproof velvet of nylon is a distinct possibility. It is visualized that lighter and sheerer velvets which may even be washable will result from a continuation of this development. The use of nylon in upholstery pile fabrics is also a possibility. For this use nylon possesses the additional quality of resistance to attack by moths. One or two small trials made in connection with synthetic fur-like fabrics showed

Since nylon fabrics can be set, it is claimed that a dress such as this may be laundered without the necessity of repleating or ironing.

that nylon could be permanently embossed and set to simulate various types of furs. Undoubtedly, the abrasion-resistant properties of nylon will contribute in a real way to the wearing qualities of such fabrics.

SHEER FABRICS. The work done in curtains and draperies was very limited. However, sample fabrics were made in marquisette weaves, and also in laces and nets. It seemed that the lightness of weight and sheerness of these fabrics, while at the same time maintaining a relatively high strength, should be of advantage. As in the case of full-fashioned hosiery, the setting of these fabrics maintained a clarity of weave or construction which should contribute in a large way toward their acceptability. Nylon fabrics so handled are stabilized and should not be seriously affected by weather changes. They should be washable and should require only the minimum ironing. The use of a curtain stretcher might be a thing of the past.

Some development work was also done in miscellaneous uses such as bolting cloth and screen printing cloth, ribbons, shoe fabrics, and coated

Cotton Gun Slings Replace Leather

Gun slings to carry small arms weapons over the shoulder are now being made of cotton webbing. These slings are also used to steady the weapon for highly accurate fire.

Besides saving many tons of leather needed for other necessities, the Army Ordnance Deparment has announced a saving of five million dollars in two years of service for the cotton web gun sling.

Treated for moisture, mold and jungle conditions, cotton webbing is giving as satisfactory service as leather for gun slings. This is indicated from actual battlefront reports.

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fabrics. All of these uses and others which have not as yet been attempted will be taken up again by the mills when yarn becomes available for experimental use. The prewar fabric development of nylon was only the beginning.

Carefully controlling the finishing of the fabric is necessary. Pressure steam setting was used to good advantage on many light-weight fabrics, the setting being done on a roll. However, it was found that the conditions differed greatly from those which were encountered in hosiery, since it was much more difficult to penetrate a large roll and obtain a uniform set than it was in the case of hosiery, where only a single thickness was involved. Nevertheless, results were obtained by this means (especially on fabrics such as marquisettes) which at that time were not obtainable by any other method of finishing. By steam-setting light, open fabrics of this type as they came from the loom, the weave could be stabilized against distortion during the normal scouring and dyeing operation. It should be borne in mind that a fabric which has been set in this manner before dyeing and finishing has been stabilized to a considerable extent against shrinkage, whereas in many fabrics the maximum shrinkage is desirable. One of the problems in fabric development is to determine at what stage in the finishing the setting or stabilization should take place. The advantages of first developing a fabric effect and then setting the fabric to retain this effect permanently seem obvious. This would be particularly important in such uses as ruffles or where permanent pleated effects are desired.

Nylon marquisettes such as this show promise because they utilize the yarn strength, resistance to snagging and soiling, and dimensional stability when set.
Photos courtesy Du Pont Co.

HEAT FINISHING. Shortly before the war, experiments were made with a new method of finishing termed "heat finishing," a process involving the subjection of nylon to high-temperature dry heat for a few seconds. In actual practice, temperatures of 425 to 435° F. for approximately 10 sec. are used. The results have been quite different from those obtained by the use of steam setting. The principal benefits to the fabric have been an improvement in the softness or hand, which is also accompanied by better draping qualities, and improved resilience in the fabric. Subjecting a nylon fabric to this kind of heat-finishing treatment also results in greater shrinkage widthwise. Up to the present time, fabrics treated in this manner have been subjected to the necessary temperature by passing the fabric over a specially designed hot roller. Recent experiments, however, indicate that similar results may be obtained by heated air. The control of temperature is of the utmost importance, since temperatures in this range are necessary in order to obtain the desired effects. Lack of control might seriously endanger the fabric, as the temperature is not far below the fusing point of nylon.

It should not be deduced from these remarks that nylon fabrics cannot be finished by conventional methods. Many millions of yards of nylon fabrics have been finished on jigs and by other means which have been adequate for the purpose for which the fabric was developed. However with these new procedures, the way seems open to make use of the principles involved in the development of new and better fabric effects.

WAR FABRICS. In regard to nylon in military applications, the history of the cooperation of manufacturers and finishers in the parachute program constitutes a bright chapter in the total war effort. In like manner, the production of various nylon fabrics for the armed services today is serving an equally important need.

What are the properties which have made nylon desirable for military purposes? Here are a few of them: Nylon possesses high unit strength. It can be spun in fine sizes. Pure nylon is practically mildewproof and highly resistant to soil rot. Under most conditions it has high abrasive resistance. It can be molded by hot calendering and stabilized or set with heat and moisture. All of these properties and many others have been utilized in military fabrics. Perhaps they will be equally valuable in civilian fabric uses.

A few of the military fabrics can be of value in suggesting postwar uses for nylon. For instance, a 30-den. nylon flare fabric is not far in construction from a nylon sheer. With a few more ends and picks, and a few more turns in the yarn, a fabric can be developed which should have a large number of practical uses. The weaving of nylon

(*Continued on page 202*)

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New Synthetic Wetting Agents of Exceptional Efficiency and Versatility:

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Subsequent announcements will present detailed data on the individual Quaker DIANOLS. Some of their outstanding characteristics are:

- **Most efficient on the basis of applied cost.**
- **Applicable to all phases of wet textile processing requiring a synthetic wetting agent of high quality and low applied cost.**
- **Stable and effective in solutions of 1-12 pH.**
- **Are excellent sanforizing and re-wetting agents.**
- **Stable and effective in hard or soft water and over a wide range of temperatures.**
- **Do not discolor white goods or alter shades.**
- **Rapidly wet out cotton, wool, rayon or acetate fabrics.**

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High-Strength Cotton Yarn From BONDED ROVING

HIGHLIGHTS: Dan River Mills Development Uses "Fiber-Bonded" Process—Roving Is Plasticized, Stretched, Compacted, and Set—Yarn Strength Superior to Conventional Cord—Process Available to Industry Under License Agreement.

By T. O. OTT, JR.
Southern Editor, Textile World

INTENSIVE RESEARCH at Riverside & Dan River Mills into the application of the Harley Y. Jennings patent, covering the product and art of increasing tensile strength and decreasing the stretch of textile yarns by the application of bonding materials (U. S. Patent 2,220,958), has resulted in the development of new yarns from fiber-bonded roving, made without the use of spinning and twister frames. This new development radically alters the processes required to make a commercially practical yarn with individual characteristics. It also improves the opportunity to use short staples in making a thread with high breaking strength.

In addition, research is being conducted to develop further the basic Bartell patent on the application of natural and synthetic resins to give a permanent finish and to impart such qualities to fabrics as greater abrasive resistance, and increased tensile strength (U. S. Patent 2,097,012). Such finishes are insoluble in water, resistant to acids, and do not affect the original color of the fabric. Shoe-lining fabrics, licensed under this patent, are being marketed under the Dan River trade-mark "FIBER-BONDED."

Another Jennings patent covering the art of applying pigments and bonding material simultaneously to yarn or fabrics has been secured (U. S. Patent 2,334,199). This process, it is claimed, antedates all other pigment dyeing and is important in the growing art of applying bonding materials. All three patents mentioned are owned by Dan River; other patent applications pending.

These recent developments are of such importance that the mill management feels it cannot handle them exclusively. It is therefore offering to license them to other manufacturers.

YARN REQUIREMENTS. In a recent paper given before the American Association of Textile Chemists and Colorists, H. M. Chase, director of research at Dan River, described an ideal yarn as one having these four characteristics: (1) all component fibers alike and of maximum strength per unit of cross-section; (2) each fiber bearing its proportion of the load; (3) rupture occurring at the breaking strength of the fibers—in other words, no slip; (4) yarn perfectly uniform in cross-section—that is, the same number of fibers per unit throughout.

While the first requirement listed is left to the physicist and biochemist, the second requirement can be approached through chemical treatment by which the fibers are permitted to slide until loose ones come into adjustment.

The third requirement prescribes lack of slip, while the second calls for slip. This contradiction is not difficult to solve. The yarn is first rendered plastic during the stretching or drafting operation and subsequently is set by heat or other means so that friction between the fibers increases far beyond that normally achieved. This is done in a single operation.

Jennings' procedure consists of applying bonding materials in a solution or emulsion to the yarn or cord, stretching the yarn to as near the breaking point as practical while the resins are in the plastic state, and then setting the bonding material on the fibers. His first work was done for the shoe-thread field. Shoe threads were said to have been produced in which the tensile strength was increased 70 to 80%. Stretch was taken out of the cotton yarn and at the same time the strength was increased, which made a yarn comparable to linen thread.

TIRE CORDS. Investigation by Gwaltney, Graybill, and Newton on low-stretch tire cord and Jennings' findings on resin-bonded yarn point to the fact that a yarn must be stretched while in the plastic state to approximately the breaking point in order to obtain the maximum increase in tensile strength. They also found that this increase in tensile strength was achieved principally by tension applied very close to the breaking point. After this tension was applied to yarn in a plastic state and the yarn was set, very little elonga-

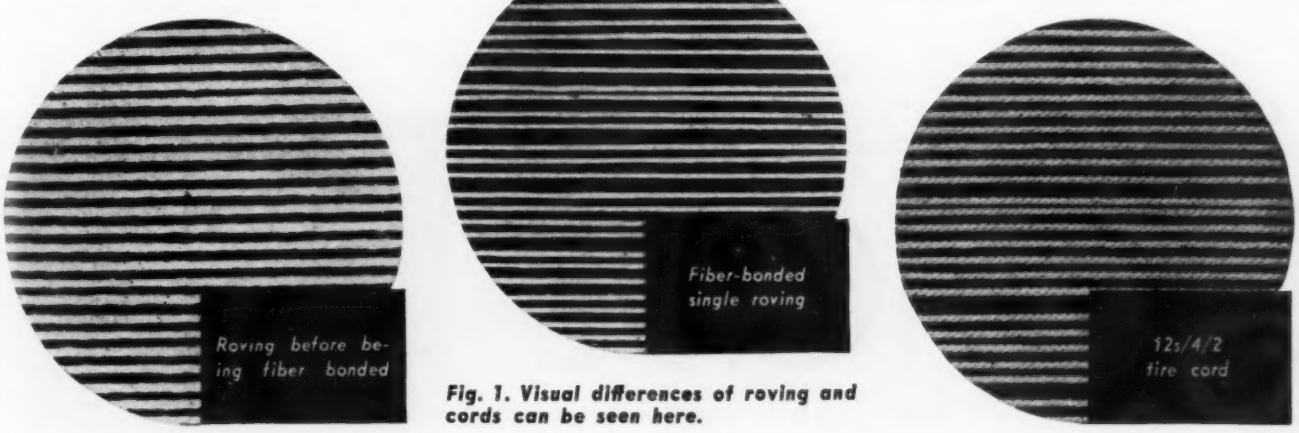

Fig. 1. Visual differences of roving and cords can be seen here.

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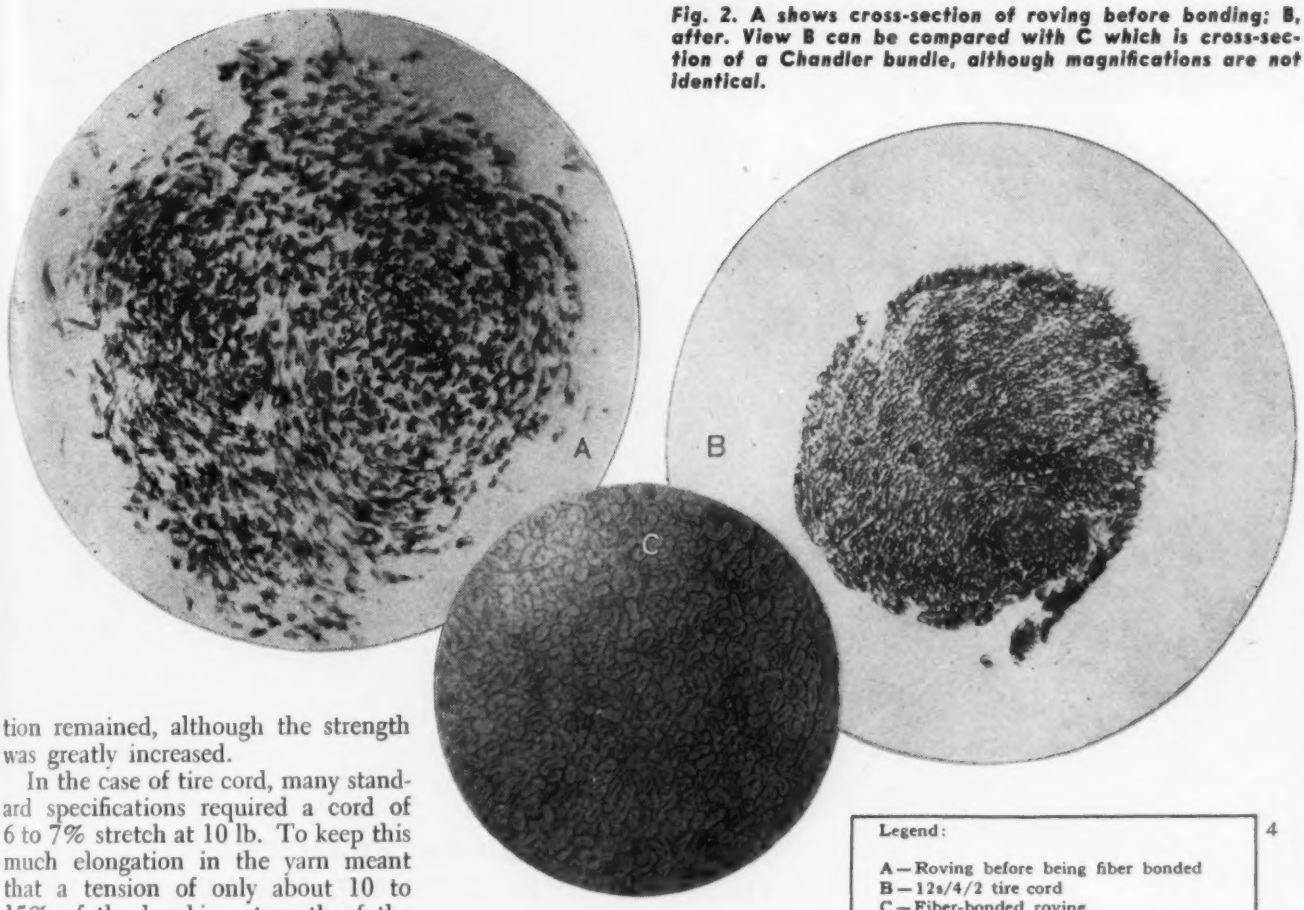

Fig. 2. A shows cross-section of roving before bonding; B, after. View B can be compared with C which is cross-section of a Chandler bundle, although magnifications are not identical.

tion remained, although the strength was greatly increased.

In the case of tire cord, many standard specifications required a cord of 6 to 7% stretch at 10 lb. To keep this much elongation in the yarn meant that a tension of only about 10 to 15% of the breaking strength of the tire cord could be applied. This small amount of tension would result in only a small increase in tensile strength. The problem was finally solved by using a re-stretching process. After the cord was stretched, plasticized, and set, so that it had only about 2% elongation, it was rewet and placed under controlled but reduced tension. This left a larger amount of elongation in the cord—but at a sacrifice of some of the strength previously achieved.

BONDED ROVING. Production of high-strength industrial yarn directly from relatively high-twist roving follows the procedure described in the foregoing paragraphs for tire cords. It differs in that a bonding agent is applied simultaneously with a mechanical stretching process. During this process pigment dyes can be applied as well as other treatments to make the yarn mildew-proof, fireproof, water-repellent, or rot-resistant. Stretching is carried out almost to the breaking point. Then the resins are cured with the fibers highly compressed into a smaller cross-section than in the original roving, as shown in Fig. 2. Examination of interstices in the cross-section of fibers prepared by the Chandler-bundle method indicates that the resin-bonded roving yarn is apparently as tightly compressed. The

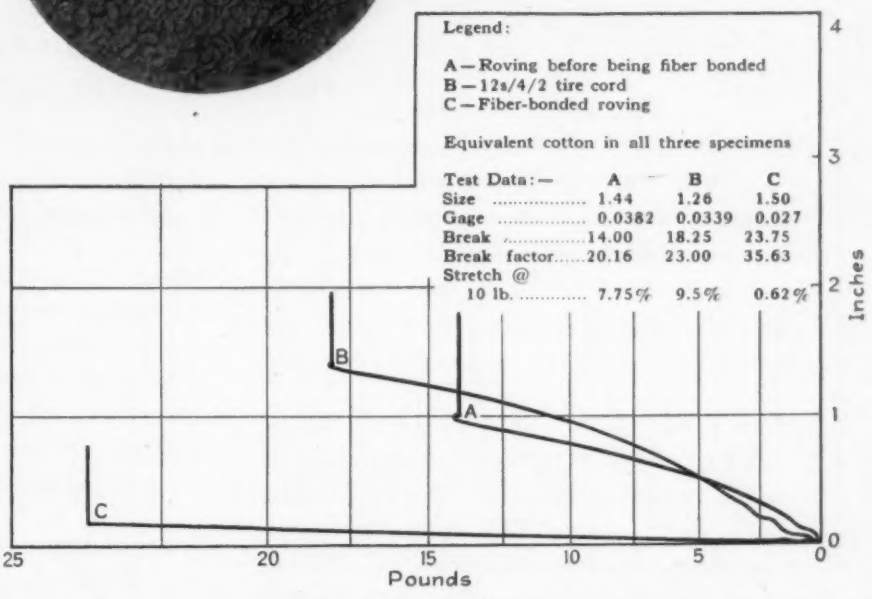

Fig. 3. Above is a standard test card showing the performance of 1.50-hank roving, of 12s/4/2 tire cord, and of "Fiber-Bonded" roving yarn made by the new synthetic resin-bath process. Note that the tire-cord yarn is actually much heavier than the roving, due to contraction in twisting, which means that the roving strength improvement is actually better than shown.

1.50-hank roving before and after treatment can be compared with an ordinary 12s/4/2 cotton tire cord, by reference to Fig. 1.

Comparison of the size, gage, break, break factor, and stretch at 10 lb. are shown in Fig. 3. The roving before treating appears as A, the 12s/4/2 tire cord as *B*, and the fiber-bonded roving as *C*. Examination of the table in Fig. 3 indicates that the weight of the roving is increased by the chemical treatment, the gage is decreased, the break increased over 69%, the break factor over 70%, and the stretch is reduced from 7.75% in the untreated roving to 0.62% in the fiber-bonded yarn at 10 lb. The application of the bonding agent to the yarn can be controlled so as to produce yarns soft and pliable or hard and wiry.

The strength of the bonded roving compares favorably with resin-treated tire cord before restretching.

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CLIMATIC CONTROL
Keeps Our Soldiers Warm

HIGHLIGHTS: Quartermaster Develops System for Predicting Clothing Requirements—Principles May Be Used by Woolen Branch of Industry in Designing Sports Fabrics—Clo Unit Has 1/4-Inch Insulation Value.

By HAROLD E. REED
Assistant Editor, TEXTILE WORLD

THE TEXTILE TECHNOLOGIST and the textile executive will have another unit of measurement with which to contend, following World War II. This unit, known as the "clo," is the result of development work conducted by a little-known branch of the Office of the Quartermaster General, the Climatology and Environmental Protection Section, Research and Development Branch, Military Planning Division.

This official title applies to a small group of men who are attempting to correlate information on climate, physical stamina, insulation value of fabrics, and the like, and to set up standards whereby the amount of clothing required to keep a soldier warm and comfortable at any part of the globe and at any season of the year may be predetermined. While not all the problems involved have been solved, sufficient information is available so that our soldiers are far better clothed to meet climatic conditions than previously. Also, postwar implications of climatic control of clothing now point towards extensive use of control charts developed by the Army for selection of sports clothing and the development of suitable sports fabrics in the future by woolen mills.

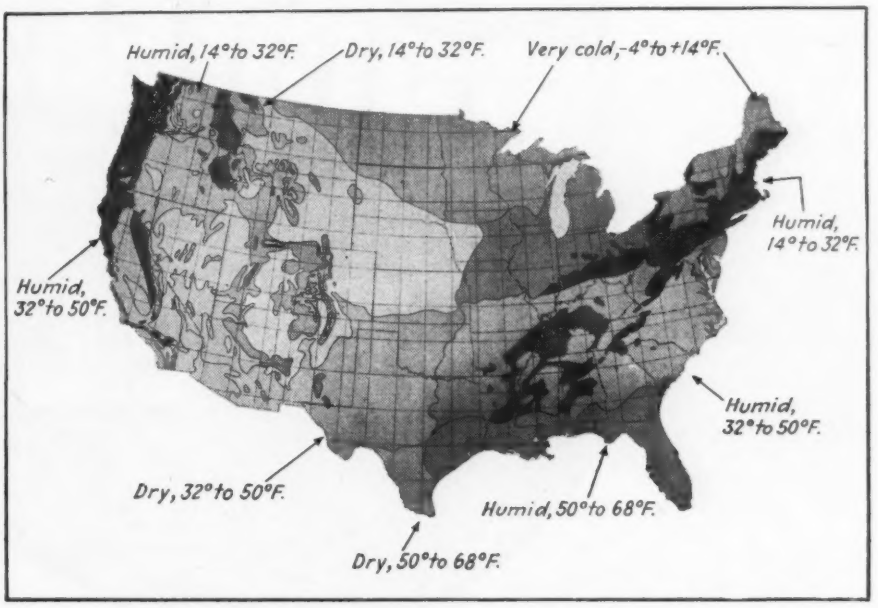

Fig. 1. The map reproduced shows the climatic conditions in the United States during January. Areas which are dotted-in are wet to the point of being uncomfortably so. In the original map, color is used to denote dryness, humidity and temperature. These readings have been transferred to the map.

DIFFICULTIES ENCOUNTERED. The Quartermaster Corps has been guided in the past in its development of new fabrics and clothing by reports from the field. With a fast-moving war on all fronts, and some of these fronts in the tropics where our troops have never before fought, problems have to be anticipated. Clothing cannot be sent without reasonable assurance that it will stand up under climatic conditions which will be encountered.

Before reasonable assurance of clothing stamina can be obtained, the following facts must be known: 1. The exact climatic conditions to be encountered. This material may be supplied by climatic control charts in the form of seasonal maps, as illustrated in Fig. 1. Meteorologists have this information. 2. Climatic stresses affecting a soldier's body and his clothing items must be known. 3. Best methods of protecting soldiers and their equipment from the environment must be determined.

Information covering these last two items has not been available. Hence the Climatology and Environmental Protection Section set out to develop this vital information. The Medical Corps and even the physiologists were unable to state how a soldier's body reacted to the extremes of climatic conditions. Textile technologists could not interpret laboratory measurements of fabric insulation, air permeability, water repellency and like measurements with results obtained when these fabrics were manufactured into clothing and worn by the soldier. All these factors had to be determined and correlated.

APPLICATIONS OF CLIMATIC-CONTROL PRINCIPLES. After material relating to climatic control of fabrics and clothing was assembled and set up in form of climatic maps for each country, charts covering clothing requirements and insulating values, formulas, and other pertinent data, principles of climatic control were then applied to the field.

Practical military applications of these principles may be illustrated as follows: If orders are given to provide troops in the Alps with clothing suitable for climatic conditions prevailing in the spring, a glance at official climatic maps show dotted blue color for this European region. Maps of the U. S. show dotted blue color for New England in January. Knowing the climatic conditions north of Boston during the winter, the officer will realize that the same climatic conditions will prevail in the high Alps in the spring. Hence clothing suitable for New England in the wintertime will meet the climatic conditions of the Alps in the spring.

Postwar applications of these climatic maps will include their use as

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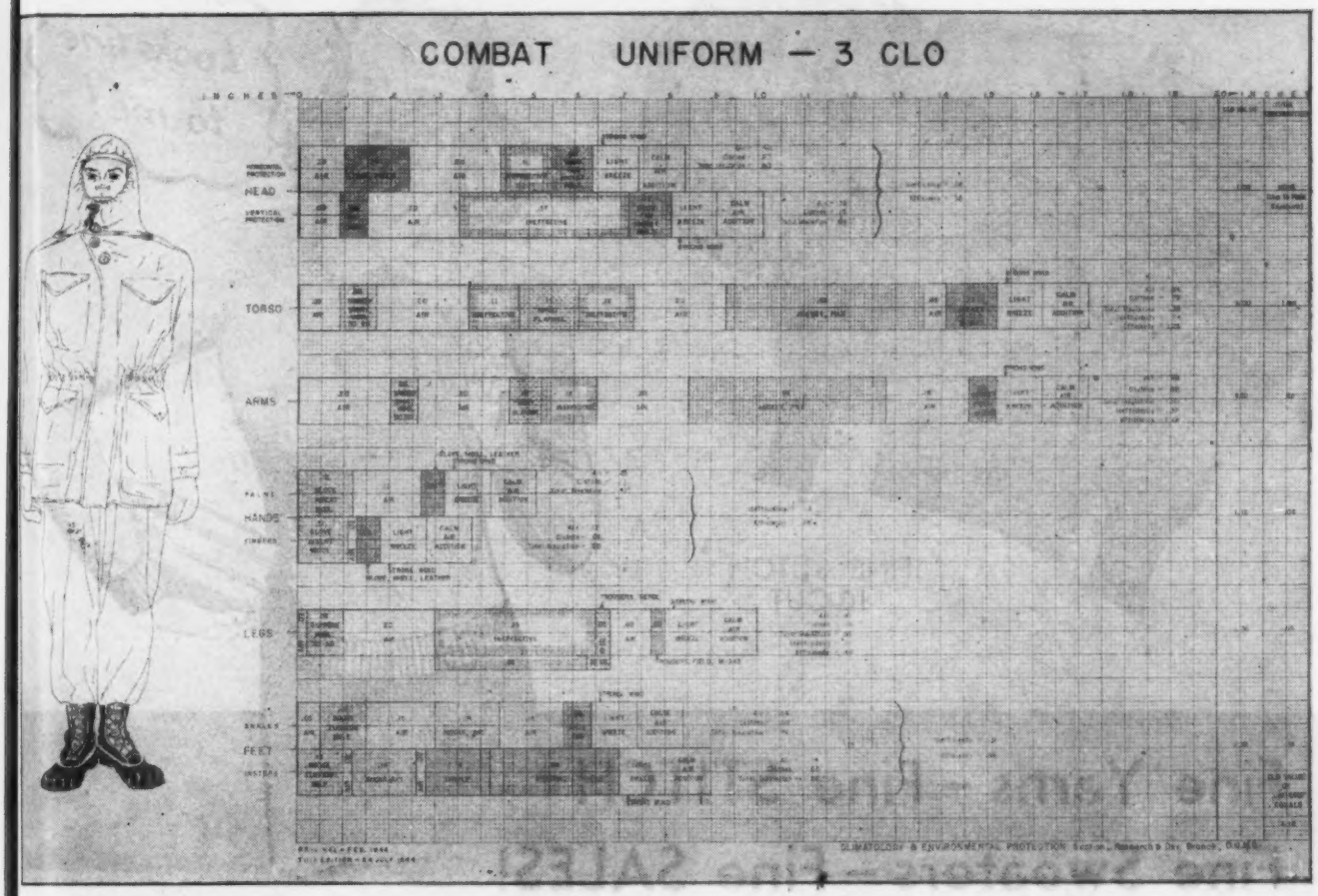

Fig. 2. Thickness chart shows "clo" value of the various items of clothing and fabrics used in the cold-weather uniform.

a guide to business men having to travel throughout the world. Clothing requirements for any portion of the world and at any season of the year can be determined at a glance. Textile manufacturers may find these maps of value in connection with the designing of a complete line of fabrics suitable for use in all sections of the world.

With the most distant portion of the globe within 60 hr. flying time, and with international trade and a world-wide attitude being taken by our citizens, textile manufacturers must soon consider fabric design from an international point of view. Fabrics must be designed to meet conditions found in all sections of the world, and not necessarily from the domestic point of view. These charts will indicate climatic conditions to be considered when such fabrics are designed.

THE CLO UNIT. The clo unit gives an objective means of measuring the adequacy of clothing. It can be determined in two ways. First, by the original formula for measuring the amount of heat lost by the human body through the clothing. This formula, which was developed by Burton, Bazett and Gagge (the originator of the clo unit), requires metabolic testing of human or dummy subjects in a cold-chamber laboratory.

The second method, which was developed by the Climatology and Environmental Protection Section, is a straight physical measurment of the resistance which the clothing offers to the transfer of heat. This requires only a determination of the thickness of the clothing fabric plus the included air. One clo is effective insulation of ¼ inch.

A short description of each of these methods follows:

1. Measurement of heat loss from the human body through the clothes:— The basic equation for this is as follows:

$$\text{Clo value} = \frac{3.09\,(T_s - T_a)}{M - S - (E + A)} - I_a$$

required for complete comfort

A = Heat loss by warming inspired air
E = Total evaporative heat loss
I_a = Insulation of the air in clo units
M = Metabolic heat production of body
S = Storage i.e., amount of heat lost from the stored heat of the body tissues in excess of amount produced by the metabolism
T_a = Temperature of ambient air °F.
T_s = Temperature of skin °F.

The more heat the body is creating, the less clothing will be needed. For convenience sake these laboratory tests are usually made with the men sitting still at rest. However, by use of the formula, charts have been prepared showing the number of clo value necessary to keep a man comfortable indefinitely at other activities. For these the wind velocity is usually assumed to be 4.7 m.p.h. as this figure most nearly approximates average outdoor conditions.

Even when the wind is blowing, there is always a thin surface film of still air on the outside of the clothing. This film may vary in width from 0.2 in. in almost still air when it has a value of .8 clo to a value of less than 0.1 clo when the wind is at 50 m.p.h.

Use of these still air factors brings us to the second method for measuring clo values. Dead air is the lightest, cheapest and most practical form of insulation. The greatest value of fabrics in ordinary use results from the amount of dead air which the fabric holds. Curly wool fibers hold more still air than the smooth tightly woven fibers of cotton. But on the other hand the tightly woven fabric makes a better windbreak and should be worn for the outer garment.

A layer of air in excess of 0.2 in. will begin to lose its effectiveness because convection currents are set up. Large air spaces therefore tend to reduce the heat-retaining qualities of the clothing.

A typical sample of charts show-

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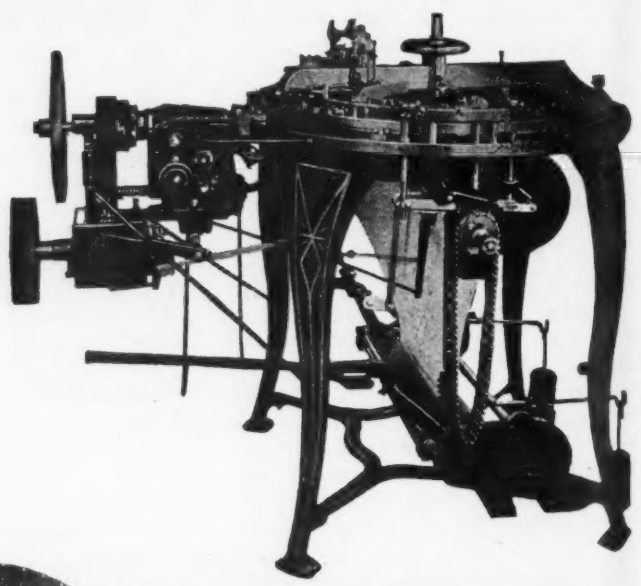

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ing measurements of thickness of clothing as resistance to heat transfer through the Army cold-climate combat uniform is illustrated in Fig. 2. Different fit or shape of the human body might somewhat alter the actual measurements shown here. These measurements were derived by taking the circumference of the clothing layers over the nude body and calculating the radius. Then the optimum thickness of the material was measured on a compresso-meter. If there was room between the layers for the fullest possible thickness without any compression, this thickness was shown diagramatically on the chart. If any compression was present, this thickness had to be reduced.

The final results of this tabulation are added, and it is found that the effective air space equals .64 in., fabrics equal .75 in., giving a total insulation of 1.39 in.

THEORY OF EFFICIENCY. At this point two corrections must be made because this amount of thickness is not all efficient. It would be efficient if it were over a flat plate, but the body is not a flat plate; it is made up of various sized cylinders, and the efficiency of the insulation over each of the cylinders depends upon the thickness of the material and the radius of the human cylinder. Values are given in the table for the efficiency of various thicknesses of different parts of the body. This correction is indicated by the efficiency and the inefficiency figures on the chart.

LOSS OF HEAT FOR VARIOUS PARTS OF THE BODY. Further correction has to be made because the torso loses more heat than the hands, etc. After the clo value figures are weighted for the contribution they make to the whole, they are added and the final value of the suit is found to be 3.19.

THE THEORY OF FABRIC DESIGN. It appears probable that closer cooperation should be obtained between fabric designers and sport clothes designers. Utilizing the principles set forth by the Climatology & Environmental Protection Section of the OQMG, it is possible for the designer to make just such thickness charts as are illustrated and to specify the value of each of the fabrics he intends to use. It is possible that the existing fabrics may not be the most suitable and the designer has a greater opportunity to develop an entirely new fabric or a number of fabrics to meet the existing conditions.

Fig. 3. Postwar possibilities of adopting military fabrics to civilian sports needs are unlimited. Model is garbed in ski-troopers uniform which could be used "as is" by civilian skiers. Col. H. A. Kuhn examines wool-lined ski trousers.

CLO REQUIREMENTS. It is not only possible to determine the temperature which any given clo value will keep a man comfortable indefinitely, it is also possible to predict how long he can withstand the cold if his clothing is insufficient. Charts have been prepared which will permit the technologist to determine these lengths of time for any degrees of activity at temperatures ranging as low as −60°F. Also, given the temperature and the length of time he is to be subject to the cold, the required clo value for a suit may be determined. For example, if a soldier is to stand at guard duty for 4 hr. at a temperature of +10°F, he will not need the arctic uniform but will find the combat uniform sufficient, if however, he is to be driving in a truck at that temperature for 12 hr. he will need the arctic suit.

PRACTICAL APPLICATION. One of the essential requirements in any garment is to obtain maximum warmth with the least bulk possible. The thickness charts show advantages of the layer principle. Perhaps an ideal arrangement would be to have a number of layers spaced 0.2 in. apart and held in place by baffles in order to take advantage of insulating properties of air. Such a uniform, would be of minimum weight, minimum bulk and maximum insulating value.

However, it is certain that by planning the clothing assembly on paper using thickness charts along with a clothing technologist to give advise on the fabrics desired, more suitable textile fabrics and more suitable garments will be the result.

TABLE—EFFICIENCY OF PARTS OF BODY

	1-Inch Clo Value	Approximate Efficiency	2-Inch Clo Value	Efficiency
Flat Plate	4.8	100%	8.0	100%
Torso	3.8	95%	7.0	87%
Head	3.5	87%	6.2	77%
Feet	3.2	80%	4.1	51%
Hands	3.0	75%	3.8	47%
Little Finger	1.6	40%	2.1	26%

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KNIT PATTERNS
Are Calculated From Factors

HIGHLIGHTS: Figuring Pattern Work on Circular Knitting Machines Not Difficult — Field Depends Upon Number of Needles — Mark Starting Point to Set Wheels Correctly — Additional Feeds Increase Design Possibilities.

By H. D. BUCK

TO MAKE DESIGNS or pattern work on circular knitting machines with cut pressers or Brinton-type pattern wheels, first take the whole number of needles in the cylinder and factor it. For example, take a 22-in. machine containing 730 needles and divide it as follows:

$$\begin{array}{r} 2)730 \\ \underline{5)365} \\ 73 \end{array}$$

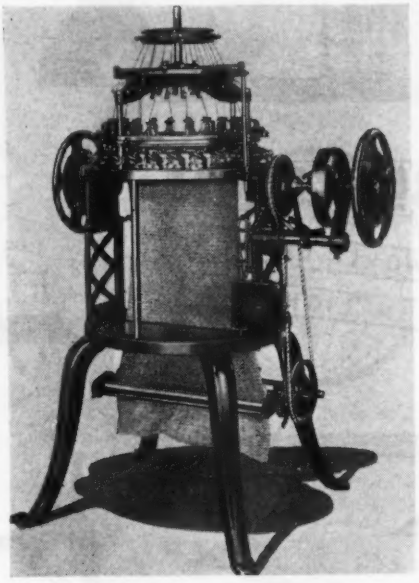
The factors are 2, 5, and 73. As we find no other number that will divide evenly into these, except some multiple, our width of field for a design is restricted to the number of needles represented by one of these factors or a multiple of two or more of them. Therefore, we will take 2x5 which equals 10 and use this for our field. It is the nearest approach to a practical field or width we can find for a cylinder with this number of needles.

Now we have to figure about how many of these groups of 10 needles we will need to make our wheel the proper size, although this will vary somewhat according to the design we wish to make. The height of the design or field depends partly upon the number of these groups on the wheel.

The courses from the bottom to the top of the field will be the number of groups (10 needles to a group) on the wheel multiplied by the number of feeds on the machine.

For instance, if we cut our wheel with 100 prints (10 groups) and have 4 feeds, our field will be 40 courses high by 10 needles wide; if 90 prints (9 groups) with 4 feeds, our field will be 36 courses high by 10 needles wide; or if the wheel contains 110 prints (11 groups), our field will be 44 courses high by 10 needles wide. In actual practice, however, we ignore the plain feeds; therefore, in laying down a pattern or design for a 4-feed machine, we figure only on two feeds which, of course, cut these figures in two.

By the foregoing is meant that when a cut presser or wheel is used on every other feed, but when wheels are used on all the feeds (which happens occasionally), then all feeds must be laid down on the design.



Pattern-wheel design being knit on Brinton machine.

UNITS OF TEN. From this point on, we must think only of groups of 10 as a unit; and, if we make no mistake, the individual needles will take care of themselves.

The idea now is to arrange things so that one group of 10 needles or prints on our wheel will print in a design section only once, until all other groups have printed in that section in their turn. For instance, a 9 group (90 print) wheel will print 9 times in each field and each time a different group.

To do this on a 22-in. machine with 730 needles, we divide 730 by 90—which goes 8 times with 10 needles (1 group) left over.

As the cylinder turns around once, the wheel makes 8 full turns and has one group (10 needles) over. These 10 needles must be used to get to our starting point; therefore, when our wheel arrives at the starting point, group 2 will print in the particular field that group 1 printed in the first time; but, of course, will be above it.

The second time around, group 3 on the wheel will print in this field; the next time group 4; and so on until all 9 groups will have printed, one above the other and in its turn. Then, naturally, since No. 1 joins No. 9 on the wheel, the same procedure starts all over again in the next field above.

To lay down a design in order to be able to specify just which needles knit and which tuck (or rather which print on the wheel press and which tuck), refer to diagram No. 1. The figures next to the outlined field (within the brackets) represent the wheels, while the figures outside the brackets represent the groups and are set down in the order in which they will print, starting from the bottom and reading up. Therefore, in order to specify a wheel from this diagram, start counting in the lower right hand corner with wheel No. 1 in group No. 1. The white squares press and the black squares cut. Count from the right.

After counting across the first line, continue with wheel No. 1 in group 2 across the third line; then wheel 1 in group 3 across the fifth line; and so on until all of No. 1 wheel has been set down in all nine groups. Then we should have 90 prints in all.

Proceed, of course, in the same manner with No. 2 wheel and any others, if using more than two wheels. In the diagrams, p means or knit out while c means cut or tuck.

If care is used in marking the starting point on these wheels and the same care used in setting them at the same point on the cylinder, these groups will take care of themselves after starting the machine.

To set the wheels, break out or mark a needle in the cylinder and set on this the mark on No. 1 wheel; then turn the cylinder until this broken needle comes to No. 2 wheel and set the mark on this wheel on the same place; and so on around with all other wheels, if more than one.

To specify how a wheel should be cut for the attached design, start counting on No. 1 line, No. 1 bracket, and count across the "box." Then go

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—equipment that is guaranteed against defects in material and workmanship.

Without cost or obligation on your part, let us place your name and the names of your associates on our list of those to receive the various Benjamin bulletins and other data to be made available during the next few months. These will be helpful to you in making a study of your lighting and in planning needed improvements. Just write Benjamin Electric Mfg. Co., Dept. EE, Des Plaines, Illinois and ask for Benjamin Re-Lighting Service Data.

BENJAMIN
TRADE MARK
Lighting Equipment
Distributed Exclusively Through Electrical Wholesalers

to line 1, bracket 2; then to line 1, bracket 3; and so on to the top when the wheel should total 90 prints.

The foregoing is for No. 1 wheel. For No. 2 wheel, start on line 2, bracket 1; then line 2, bracket 2; and so on to the top when, of course, this wheel should total 90 prints.

PATTERN VARIATIONS. It is possible to vary the field to achieve different patterns or designs that may need a few more or less needles in width, or a few more or less courses in height. The simplest way to secure additional height in the field is to add either more feeds or more pattern groups on the wheel. With the 730-needle cylinder the width of design is limited to 2, 5, or 10 needles unless a 219-print wheel is practical. If a 219 wheel could be run on the machine, it would cut the height with 2 wheels to 6 courses. Note that it is not necessary to have the wheel laid out so there is only one group over or under as in diagram No. 1.

For a different layout, take the same 730-needle cylinder and 70 print wheels (7 groups). In such a case, 70 goes into 730 ten times with 30 needles (3 groups) over.

According to the rule previously set down, this would give us a field 10 needles wide and 14 courses high.

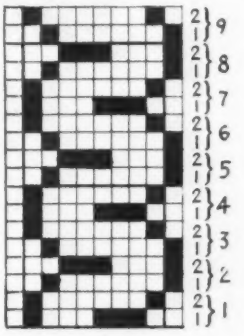
When the wheel makes 10 complete turns around the cylinder, we still have 30 needles (3 groups) left on the wheel to print in order to get to the starting point. Therefore, the group that will print next above our first group in this field would be group No. 4. In other words, we skip 3 groups every time the wheel goes around the cylinder. To find the order in which these groups will print one above the other, number the groups on the wheel. This is more convenient if done in a straight line than in a circle. Remember that No. 1 group must always follow No. 7 on the wheel.

The top figures given here represent the 7 groups; the figures under the line show the order in which they print.

1	2	3	4	5	6	7
1	4	7	3	6	2	5

The order can be found easily. After putting the consecutive numbers 1 to 7 above the line, start with 1 under 1, since group No. 1 will always print first. Now, since we skip 3 groups every time around, we count off 3 groups and put 4 under 2; count off 3 more, and we find that 7 comes under 3; count off 3 more, and 3 comes under 4; count off 3 more, and 6 comes under 5; count off 3 more, and 2 comes under 6; counts off 3 more, and 5 comes under 7.

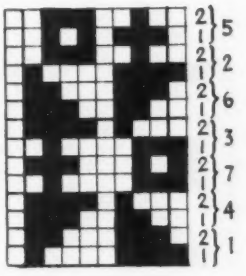
DIAGRAM NO. 1
730-needle cylinder
90 print wheel



No. 1 wheel. Read left to right. 2p 3c 3p 1c 1p 1c 6p 1c 2p 1c 6p 1c 4p 3c 3p 1c 1p 1c 6p 1c 2p 1c 6p 1c 4p 3c 3p 1c 1p 1c 6p 1c 2p 1c 6p 1c 2p.

No. 2 wheel. 1p 1c 6p 1c 1p 1c 3p 3c 4p 1c 6p 1c 2p 1c 6p 1c 1p 1c 3p 3c 4p 1c 6p 1c 2p 1c 6p 1c 1p 1c 3p 3c 4p 1c 6p 1c 1p

DIAGRAM NO. 2
730-needle cylinder
70 print wheel



No. 1 wheel. Read left to right. 4c 4p 1c 1p 4c 4p 1c 1p 3c 4p 1c 4p 2c 2p 3c 2p 3c 1p 1c 1p 1c 4p 2c 2p 3c 1p 3c 4p 1c 2p.

No. 2 wheel. 1p 3c 3p 2c 3p 1c 2p 3c 5p 1c 1p 4c 4p 1c 1p 4c 3p 1c 2p 3c 3p 3c 3p 2c 1p 1c 1p 1c 3p 3c 1p

DIAGRAM NO. 3
728-needle cylinder
112 print wheel

No. 1 wheel. Read left to right. 1c 3p 3c 3p 3c 1p 1c 3p 3c 3p 3c 1p 1c 3p 3c 3p 3c 1p 1c 3p 3c 3p 3c 2p 3c 3p 3c 3p 1c 1p 3c 3p 3c 3p 1c 1p 3c 3p 3c 3p 1c 1p 3c 3p 3c 3p 1c.

No. 2 wheel. 2c 3p 2c 2p 3c 2p 2c 3p 2c 2p 3c 2p 2c 3p 2c 2p 3c 2p 2c 3p 2c 2p 3c 4p 3c 2p 2c 3p 2c 2p 3c 2p 2c 3p 2c 2p 3c 2p 2c 3p 2c 2p 3c 2p 2c 3p 2c.

No. 3 wheel. 3c 3p 1c 1p 3c 3p 3c 3p 1c 1p 3c 3p 3c 3p 1c 1p 3c 3p 3c 3p 1c 1p 3c 6p 3c 1p 1c 3p 3c 3p 3c 1p 1c 3p 3c 3p 3c 1p 1c 3p 3c 3p 3c 1p 1c 3p 3c.

It should be noted that, when we count off blocks of 3 and come to 7, we go back to 1 again just as though the figures had been placed in a circle.

To transfer this order of printing to a design layout, simply take the figures below the line in the order they appear to number the brackets as shown in diagram No. 2.

To illustrate further how to secure a field adapted to the design wanted, assume we are working on a spring-needle machine with leaded needles. In the first examples we had 730 needles. Now take out one lead or two needles, which leaves 728 needles. Using the formula as previously stated we find the factors as follows:

2)728
2)364
2)182
7)91
13

For the width of field, we can take any one of these factors or any multiple of two or more of them. Thus we have 2, 7, 13, 8, 14, 26, 28, 32, 52, and 56 needles from which we can choose a field width. Obviously, a 728-needle machine offers a wider choice of fields than a 730.

In selecting the number of needles to be used in the field, we should remember that the more needles used in the field the less courses there will be in the height because of the limitations on the size of the wheels that can be operated on the machine. By adding more feeds, however, we can add more courses.

In diagram 3, the design selected could not be duplicated in any other field except the 56-needle. It must be 6 courses high (disregarding the plain feeds) or have a height that is a multiple of 6 courses. Similar designs could be made in fields of other dimensions.

This design requires a 112 print wheel with 2 groups of 56 needles each. In specifying a wheel, count No. 1 wheel starting in No. 1 bracket, No. 1 wheel in No. 2 bracket, and repeat in the same way with diagrams 2 and 3. Obviously, only the needles in the box should be counted when specifying the cut for the wheels.

Raw material for tomorrow's textiles

THE growing importance of chemical processing in the textile industry highlights the importance of water . . . and the necessity for controlling its quality. For the impurities it contains could interfere with chemical reactions and affect the quality of finished fabrics. Permutit* removes these impurities.

Hundreds of modern mills—including famous names in the woolen, cotton, silk and rayon fields—control the quality of their products with Permutit-conditioned water. Permutit protects the "feel" and lustre, and prevents spotty, off-color dye-lots.

Plan for a more efficient mill, through controlled-quality water. Repairs and replacements are available *now*. Write for the facts to The Permutit Co., Dept. B, 330 W. 42nd St., New York 18, N.Y. or Permutit Co. of Canada, Ltd., Montreal.

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BETTER WATER MAKES BETTER FABRICS!

WATER CONDITIONING HEADQUARTERS

Something Can Be Done ABOUT WASTE

By FRANK L. ASBURY, JR.
Assistant General Superintendent, Avondale Mills, Sylacauga, Ala.

HIGHLIGHTS: Good Housekeeping Stimulated—Accident and Fire Hazards Reduced — Operation of Waste House Simplified—Cooperation of Employees Elicited.

At Avondale Mills reduction of accidents, elimination of fire hazards, good housekeeping, and boosting morale are all tied in closely with our program for collection and disposal of waste. Prompt removal of waste from the department in which it accumulates is obviously an important step in carrying out this program. A careful program has been worked out in each plant of our group, varied somewhat to suit special conditions.

At Sylacauga the waste in the five plants is carried to what we call our Pickery. Here the waste is handled very much in the same manner in which it is handled at the other plants. That is, different grades are baled up and are made ready for sale or further use.

BLENDS MADE. In the Pickery we take some of the various types of waste and make blends for use in our own plant in certain mixes. Shipments are also received from other plants of our group and run along with the waste from the Sylacauga Mills.

Careful examination of waste by the superintendents or foremen after it is received in the waste house reveals many bad practices of wastefulness and carelessness, regardless of how well the superintendent may think he has his waste operation in the plant under control.

Frequent visits to the waste house will reveal bobbins and spools included in the waste, mixtures of high- and low-grade waste, cut yarn, cut roving, and evidences of many other costly practices that are carried on in spite of instructions to the contrary.

Of valuable assistance in this program is the Employee Waste Committee set up in each plant to control these practices and help to keep the different kinds of waste separate. The following quotation is taken from the minutes of a recent waste-committee meeting in one of our spinning rooms:

"The meeting was called to order by the foreman. It was suggested that we have some filling waste saved from mashed and crooked quills. It was also suggested that warp spindles could be cleaned to prevent tangled yarn.

"Someone suggested that spinner balls should be kept off the floor through the waste committee, section men, second hand, and supervisor.

"We have made some waste filling through the cut-off hands by not pushing bobbins firmly down on the spindle.

"The overseer suggested to the waste committee that he and the two committeemen on the first and second shifts take about fifteen minutes each week in the waste house and look at all waste."

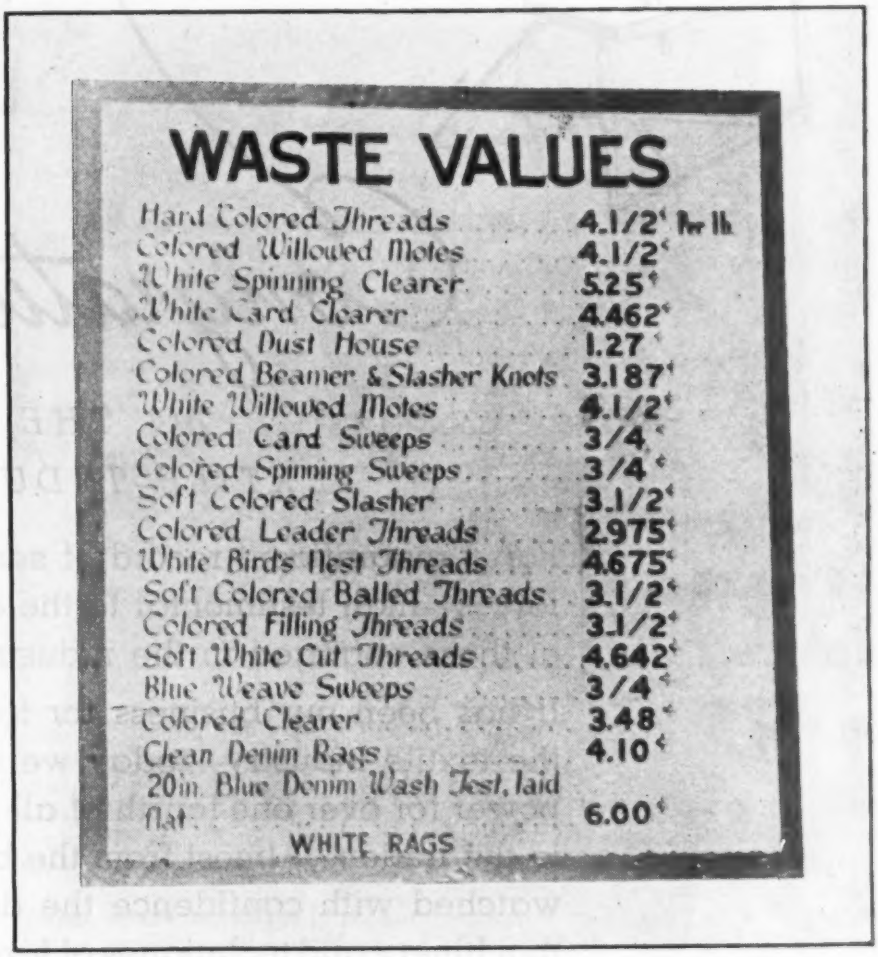
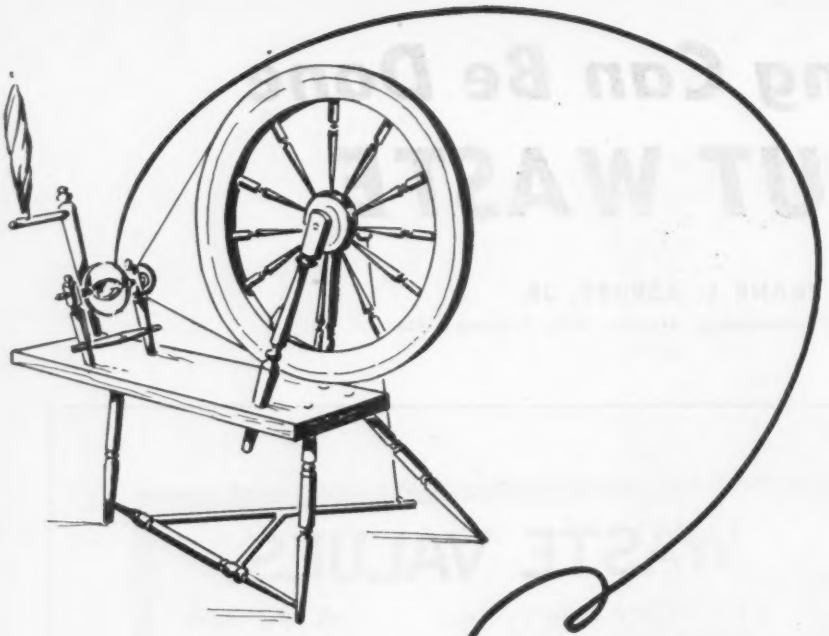

WASTE VALUES
Hard Colored Threads 4.1/2¢ Per lb
Colored Willowed Motes 4.1/2¢
White Spinning Clearer 5.25¢
White Card Clearer 4.462¢
Colored Dust House 1.27¢
Colored Beamer & Slasher Knots 3.187¢
White Willowed Motes 4.1/2¢
Colored Card Sweeps 3/4¢
Colored Spinning Sweeps 3/4¢
Soft Colored Slasher 3.1/2¢
Colored Leader Threads 2.975¢
White Bird's Nest Threads 4.675¢
Soft Colored Balled Threads 3.1/2¢
Colored Filling Threads 3.1/2¢
Soft White Cut Threads 4.642¢
Blue Weave Sweeps 3/4¢
Colored Clearer 3.48¢
Clean Denim Rags 4.10¢
20in. Blue Denim Wash Test, laid flat 6.00¢
WHITE RAGS

Fig. 1. Actual values of waste are posted on bulletin board in prominent location.

PRICES POSTED. To stimulate interest and keep the operatives advised as to the importance of the waste program, prices of the different classifications of waste are posted prominently in the mill. Fig. 1 shows one of these bulletin boards. Prices are changed from time to time depending on market quotations.

A simple scheme being followed at



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TO THE
TEXTILE INDUSTRY

For a magnificent record of service to our armed forces—high testimonial to the ability and loyalty of those engaged in the industry.

It has been our business for forty years to serve the textile industry—today we supply the driving power for over one-fourth of all the cotton spindles in the nation. Almost from the beginning we have watched with confidence the development of the machinery and techniques of large scale operation. Privileged to be "on the inside" we have seen production for war uses exceed all past records in spite of man-power shortage and many other difficulties.

We know the textile industry — and we are tremendously proud of its record!

Serving the Piedmont Carolinas

DUKE POWER COMPANY

Charlotte, N. C.

Fig. 3—A constant reminder that elimination of waste and accident prevention go hand in hand.

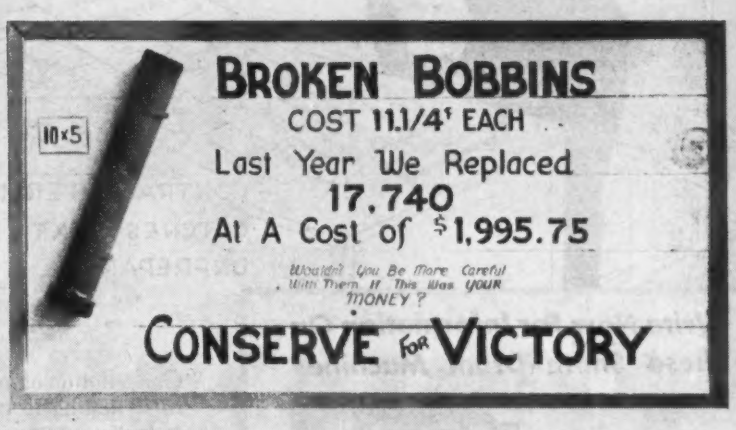


Fig. 2—A typical display, calling attention to the value of one common item.

Pell City plant includes collection of various items of waste, handling them by means of a suction system and vacuum tank to the waste house, and baling under separate classifications for shipment. The vacuum-tank receiver is arranged to discharge into trucks or boxes mounted on casters, each of which holds one complete charge for a bale of waste. When the truck has been filled, it is wheeled to the receiving hopper of the power baler and dumped in one operation. The completed bale then carries the same information that appears permanently on the particular truck which has been designated for that product.

In this mill the following waste classifications are made, and a separate truck (sometimes two) is provided for each item: colored clearers, dyehouse leaders, damaged cotton, colored seams and thrums, white starch bags, colored wash-test rags, colored rags, burlap bagging, jute bagging, white cotton bagging, card clearers, white flat strips, willowed flies white, willowed motes white, willowed motes colored, knots colored, soft ball thread colored, hard slasher thread colored, waste paper, bird-nest thread, white warp thread, spinning sweeps, weave sweeps, card sweeps, white spinning clearer, colored filling thread, greasy rags and waste, white cylinder vacuum strips, and colored cylinder vacuum strips.

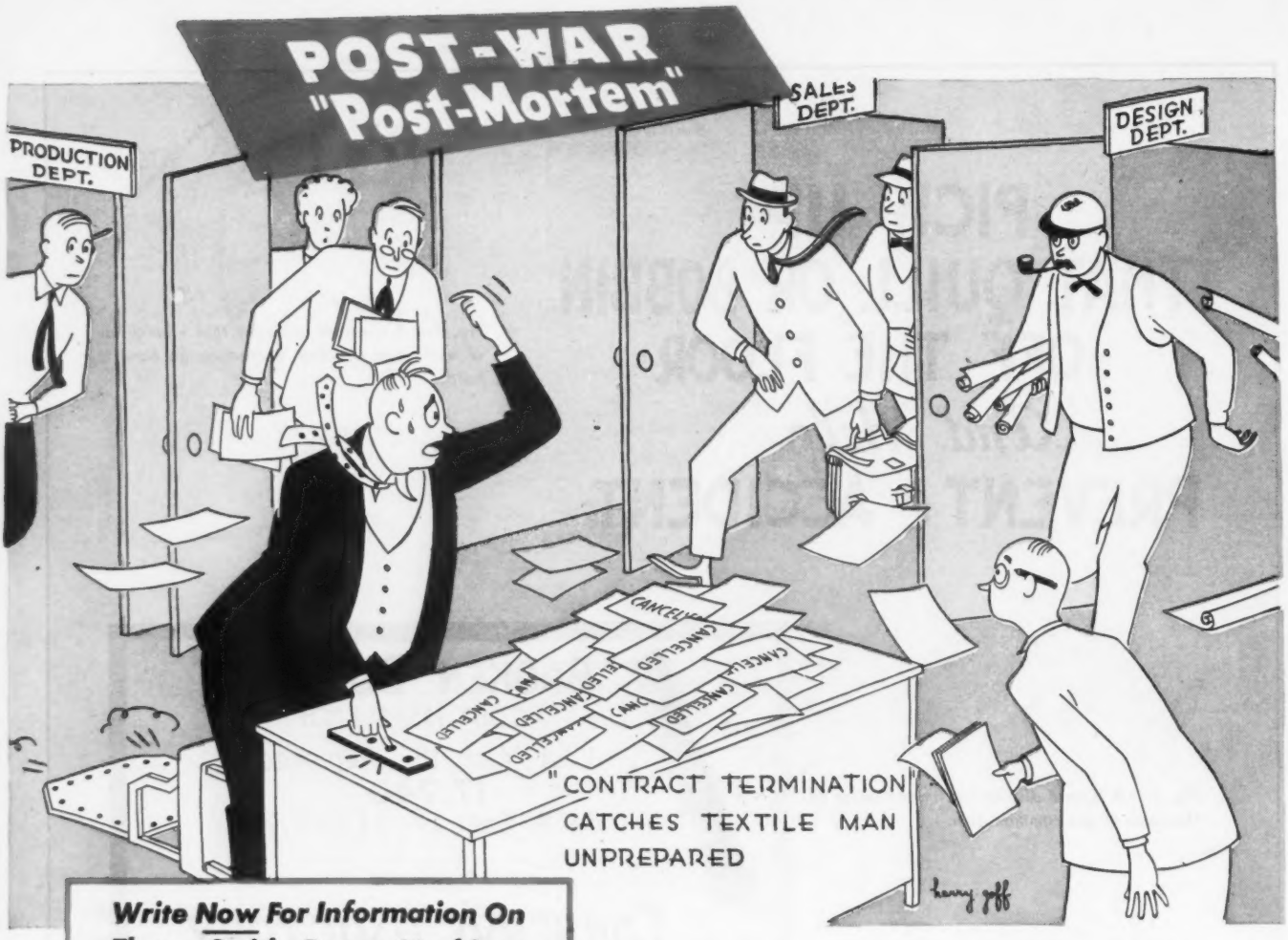
SOME WASTE CLEANED. In the waste house some types of material are willowed and cleaned and the grade considerably improved. It has been found that this system is profitable, as it does not involve additional labor, since the attendant can handle the operation in connection with his other duties.

In general, throughout the plant, each overseer is responsible for picking the waste from his department. The matter is discussed at the regular Thursday morning Overseers' Meeting, and once a month a bale is drawn from the waste house and opened up before the group for inspection and criticisms.

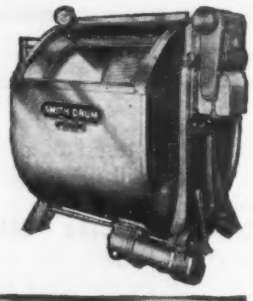
As will be noted in list given, there are many kinds of waste and each item requires some thought and planning in order that it may be handled in the most efficient and prompt manner. Prompt disposal is insisted upon in the interest of cleanliness, for which this mill is noted.

SPECIAL FEEDER. In the card room there is one item which does not find its way back to the waste house. This consists of the card-starting waste, which is returned direct to the opener room where it is mixed with roving garnett waste and drawing waste, both of which go directly to the opener room. There this mixture is put through a special feeder which is automatically controlled to deliver about 8% of the material into the cotton coming from the openers.

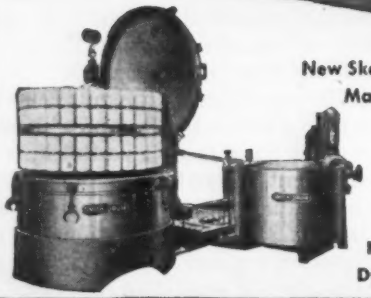
Closely related to the mill's effort to handle waste in the best possible manner, but not directly a part of it, is the consistent, maintained program of eliminating waste of accessories and supplies. In this connection the employees are given definite figures and examples of what can be saved by careful conservation. Fig. 2 is a typical example of several notices posted throughout the mill calling attention to oft-neglected items. These notices stimulate thought and fix attention on definite items.



Write Now For Information On These Smith-Drum Machines



Rotary Hosiery Dyeing Machines



New Skein Dyeing Machine

New Package Dyeing Machine

Cancellation of government contracts will demand swift action in switching to full scale peace-time production if the textile industry is to avoid serious losses. The textile man who delays any longer in making his plans for new products, marketing, sales, and *production facilities* is inviting trouble and confusion.

But "contract terminations" hold no fears for the man who plans ahead. One of the most important things to do, and something that can be done *right now*, is to check your production equipment and take steps to put your entire plant in first-class operating condition. You will probably need some new machines because a large percentage of *all* textile machines now in use are worn to the point where they can no longer produce efficiently. Decide what new equipment you must purchase.

And here is the important part: Order those machines immediately! Machinery manufacturers already are filling their books with advance orders for post-war delivery. It will take us a long time to catch up with the demand, once war restrictions are lifted. Any further delay in ordering new equipment will mean *waiting for delivery months after the war is over* . . . while longer-sighted competitors profit from the lower production costs made possible by new machines they ordered *now*.

Our "Post-War Purchase Plan" is designed to help far-sighted textile men plan ahead . . . *without risk!* Ask us for details.

SMITH, DRUM & COMPANY
Allegheny Avenue at 5th Street, Philadelphia 33, Pa.

SMITH-DRUM TEXTILE MACHINES

for hosiery dyeing, skein dyeing, package dyeing, beam dyeing, piece goods dyeing, package drying, skein mercerizing, warp mercerizing, hosiery inspection.

OLNEY MEDAL AWARD

The first award of the Olney Medal by the American Association of Textile Chemists and Colorists was made to Dr. Louis A. Olney, for whom the medal was named, at the annual meeting of the Association in Atlantic City, N. J., last month. Dr. Olney (right) is shown here receiving the medal. He is Professor Emeritus of textile chemistry and dyeing at Lowell Textile Institute, Lowell, Mass.

The accomplishments of the medalist were outlined by Dr. Robert E. Rose (center). Presentation was made by A. P. Howes (left), president of Howes Publishing Co., Inc., which endowed the medal for the association.

Marked Progress in TEXTILE CHEMISTRY Disclosed at Atlantic City

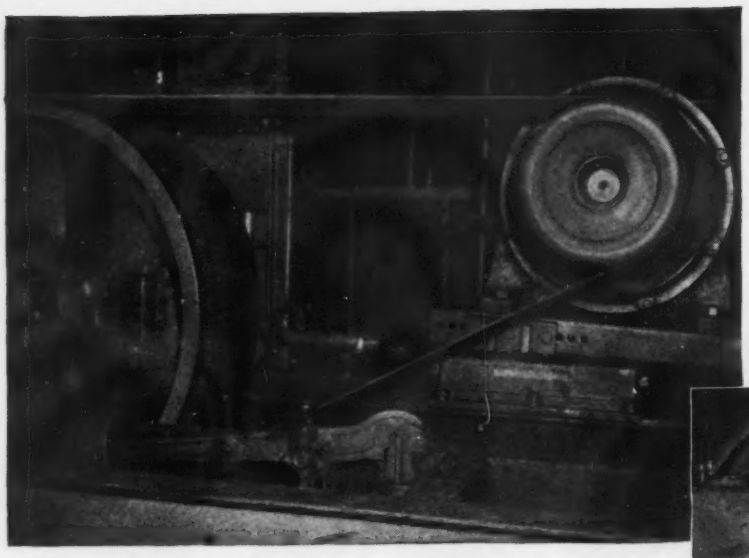
HIGHLIGHTS: Wealth of Data Presented at Three-Day Session of AATCC—Dr. Louis A. Olney First Recipient of Olney Medal — First Annual Meeting Since 1941 — Over Twenty Technical Papers Presented — Fifteen Abstracted.

COTTON YARN can be made directly from roving—chemicals can double or triple the strength of yarn —vat colors are being applied continuously—cotton cloth is now scoured in a fraction of the time formerly needed—large volumes of wool are indigo dyed continuously—there are four processes for making wool socks shrink resistant—techniques have been developed for dyeing most of the new synthetic fibers. These are but a few of the items presented last month at the first annual meeting of the American Association of Textile Chemists and Colorists since 1941.

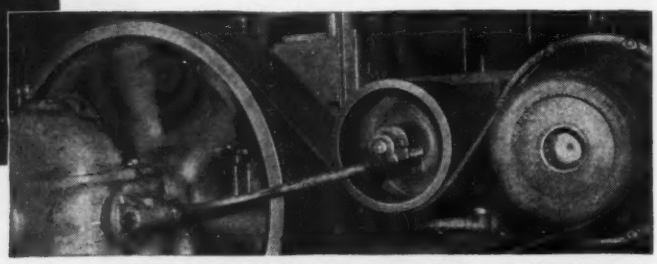
During the three-day session at Atlantic City, seven technical papers were reported on briefly and 23 were read in full, 15 of which are abstracted here.

RESIN FORMERS. Impregnation of textile materials, particularly wool, with resin formers which are converted into resins *after* they penetrate the fiber is a promising anti-crease and shrinkproofing treatment now in the development stage, according to Dr. D. H. Powers, Monsanto Chemical Co. By this method tough plastics, strong on both resilience and resistance, can be embedded in the fibers, increasing their weights as much as 250%. It is important that the application be in the fabric stage, rather than in the yarn or raw-material stage. The methyl melamines have proved particularly adapted to shrinkproofing, he added; but development of a satisfactory application to wool socks is being delayed by lack of suitable equipment. He stated that melamine resins have already demonstrated an ability to make rayons stronger and to reduce the shrinkage and improve the washability of both rayons and cottons.

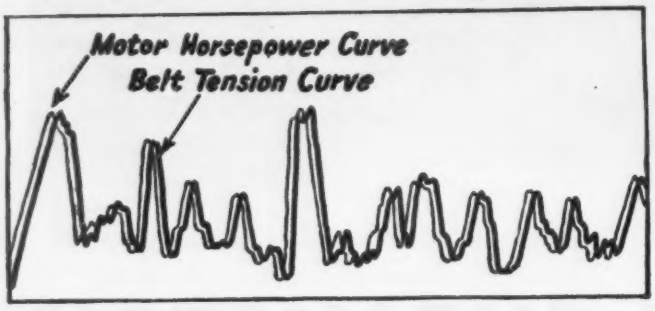
Dispersion of resins which are insoluble in water is accomplished satisfactorily through emulsions in water, according to Dr. Powers. Resins so applied do not penetrate to the core of the fiber, but do get into the interstices of the fiber and improve wear resistance, reduce shrinkage, decrease crocking of some colors, and improve lightfastness and washfastness. The dispersion of a polymer of silica on cotton has been found to double or triple the strength of the yarn, he declared, because it produces a surface with sufficient drag to resist the slippage of fibers. Furthermore,

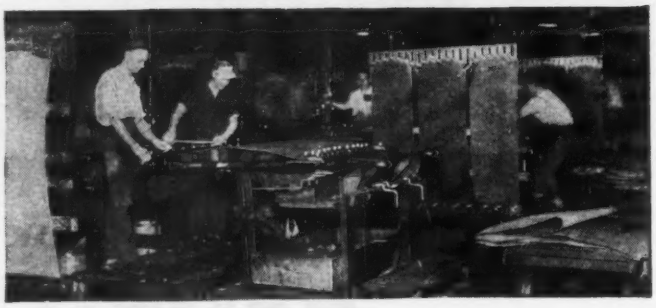


In this rubber plant, a leather belt replaced a rubber belt. On a compressor drive (48" x 16" pulley), the rubber belt, unsatisfactory, was replaced by a "Research" leather belt and the 100 HP, 870 R. P. M. motor (16" x 15" pulley) placed on a pivoted base. The gravity idler pulley which had caused trouble due to the idler arm bearing wearing and throwing the belt out of adjustment, was eliminated. The "Research" belt has required no servicing except for minor base adjustments.



No substitute can equal THIS . . . for short center drives





Put the motor on a pivoted base . . . belt the pulleys with a "Research" leather belt. The pivoted base will adjust belt tension automatically according to the load . . . saving unnecessary wear on belt and bearings. The flexible, high-friction "Research" belt will hug the small pulley with minimum slip and will take the continual flexing without excessive wear or waste of power. Will outlast a rubber V-belt on a corresponding drive by at least 2 to 1 . . . Shown above: G & K's exclusive prestretching according to hide characteristics, responsible for the non-stretch feature of "Research" belting.

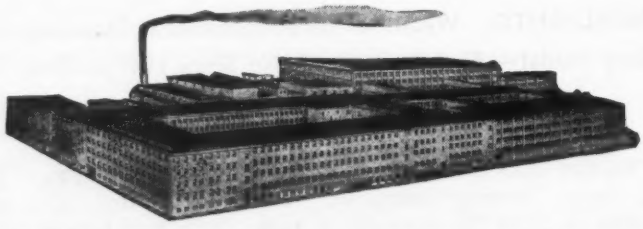
Extra Values from "Research" Belting's

"DOUBLE PLUS"

(all that's *better* in leather, made *best* in "Research")

- **MORE PRODUCTION** with leather belts because of leather's superior traction, which improves with age.
- **MOST PRODUCTION** with "Research" because "Research" processing adds extra pulley grip. 3% more production guaranteed.
- **LESS MAINTENANCE** with leather belts because natural "give-and-take" handles shock loads without undue strain.
- **LEAST MAINTENANCE** with "Research" because prestretching removes non-elastic stretch, saving take-ups.
- **LONGER LIFE** with leather belts because leather's tough, interlocking fibres have high resistance to both surface wear and internal friction.
- **LONGEST LIFE** with "Research" because the prestretched fibres are properly lubricated by precise, "weight-controlled" currying.

3% MORE PRODUCTION . . . 2 TO 4 TIMES LONGER LIFE . . . FROM "RESEARCH" BELTING'S DOUBLE PLUS

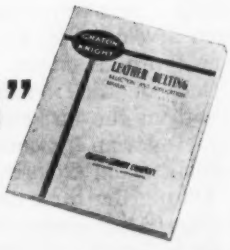


MORE UNIFORM results can be guaranteed because "Research" Belting is manufactured from green hide to finished belt under one roof, under one control, in the world's largest industrial leather plant.

NEW BELTING MANUAL. Complete information on selecting proper type and dimensions. Price lists included. Write 326 Franklin St., Worcester 4, Mass. for "G & K Leather Belting Manual".

GRATON AND KNIGHT

"RESEARCH" BELTING



Graton & Knight Company, Worcester 4, Mass.

Branches and distributors everywhere. Look under "Graton & Knight" in "Belting" section of classified telephone directory or THOMAS' REGISTER.

the silica gives both cotton and rayon improved resilience and makes wool washable.

HOSIERY FINISHING. A plea to the chemical manufacturers that they produce a dulling agent which can be applied to hosiery before or during dyeing, so that the dyeing operation will produce the final shade and there will be no need of double color matching, was made by E. J. Siegrist, Holeproof Hosiery Co.

DETERIORATION. In discussing the aspects of the degradation of cellulose, H. A. Rutherford, Textile Foundation, stated that many cotton fabrics used by the armed forces are exposed to conditions which result in rapid deterioration of the fabrics. This brought about a study of the types of cellulosic degradation most commonly encountered; hydrolytic, oxidative, and microbiological.

Hydrolytic degradation, produced by the action of acidic substances, produces a scission of the cellulose molecule, and thus is directly revealed in a loss of strength and an increase in cuprammonium fluidity. The action of oxidizing agents and mildew (as well as other micro-organisms which act on cellulose) are not always made apparent by strength determinations, or an increase in cuprammonium fluidity, he stated. Furthermore, the various types of cellulosic degradation are often confused one with the other. He said that methods were now available whereby the various types of cellulosic degradation could be more clearly distinguished.

DRYING DEVELOPMENTS. Recent developments in the drying of textile materials, according to C. N. Rabold, Union Bleachery, include such items as indirect-fired drying ovens, infra-red lamps and burners, as well as electronic devices that have been developed to supplement steam drying. Demands for greater production, brought on by the war, and the necessity of curing resins and water-repellent finishes at high temperatures are among the reasons for the new drying devices.

He stated that these methods of drying offered considerable promise for the future, as they could be operated either independently or in conjunction with already existing steam-drying equipment. In many cases they required a small amount of floor space, possessed a low maintenance cost, and when efficiently designed produced high thermal efficiencies. Certain of these methods, particularly electronic and infra-red drying, offer promise in twist-setting of rayon and the removal of moisture from large packages. However, for some time to come steam drying will be the principal means of removing moisture from cloth; for here, both power plant and drying equipment has reached a high state of efficiency, with present steam dryers offering improved aero-dynamic and thermal features.

VAT DYEING. Recent developments in the application of vat dyestuffs were said by Captain R. S. Stribling, Philadelphia Quartermaster Depot, to include a pad-steam process for the application of vat colors continuously. This process can be applied to cotton, rayon, and mixed-fiber fabrics successfully in shades ranging from light to very deep tones.

The method consists of applying the pigment to the cloth on a pad, drying, passing the cloth through a second pad containing caustic soda and sodium hydrosulfite, and then entering it into an atmosphere of steam at 212° F., where the cloth remains less than a minute. On leaving this steam chamber it is oxidized, soaped, and washed in the usual manner.

A variation of this process consists of padding the reduced vat color onto the cloth as it enters the steam chamber, which has in the bottom a boiling bath consisting of soda ash and sodium hydrosulfite, so that the goods are alternately immersed in this bath and exposed to steam.

Captain Stribling said that many million yards of terry and huck toweling have been dyed by padding the cloth with the reduced vat color in the open width, and then entering it in rope form into a development bath on a reel-type slack washer or dye beck containing a soda-ash booster. Uniform and level dyeings are obtained since there is no "wash off" in the soda-ash booster.

Improvements in the package dyeing of vat colors have also been made, the speaker asserted. The successful dyeing of large packages has been made possible by improved winding machines, package formers, higher rates of flow of the dyebath through the packages, a wider variety and improved quality of dye types, a wide range of dyeing assistants, and a more scientific knowledge of dyeing.

SYNTHETICS SURVEY. In a survey of the current classes of synthetic fibers, W. D. Appel, AATCC president, pointed out that no fiber excels in all characteristics. Charts showing properties revealed that fibers that may be near the top of the list in one respect are often found near the bottom of the list in some other. For example, high strength is generally accompanied by low elongation.

FABRICS. H. W. Rose, American Viscose Corp., said that high-strength viscose rayon, fireproof Fiberglas, and rot-resisting nylon are three synthetic yarns which have resulted in special fabrics for the war and which will have postwar uses in fabrics utilizing their superior properties. Marquisette laminated between two plastic films was said to be one of the more promising waterproof fabrics developed for war use. A fabric developed during the war, but not adopted by the military, is one made from spun-dyed Aralac staple. Elastic nylon was pointed out as a possible development to replace rubber in elastic fabrics.

DYEING SYNTHETICS. Technic in dyeing nylon, Vinyon, Vinyon E, Aralac, Fortisan, Fiber B, Fiber G,

(*Continued on page 206*)

Part of armed-services exhibit at meeting.

Just what the Doctor ORDERED

The right prescription, correctly filled, is of prime importance to the well being of the patient. To the industrialist who is establishing a new textile plant, or relocating, the choice of the right location may mean the difference between success and failure.

For the textile industrialist, just what the doctor ordered is found in Norfolk and Western territory — a vast, productive area extending from the Midwest to the Atlantic seacoast and midway between the North and South. Here in this territory are the essential "ingredients" of the right "prescription": a wealth of the basic raw materials; intelligent native labor — skilled and unskilled; an abundance of highest quality, all purpose bituminous coal; plenty of clear water; a tax policy that is friendly to industry; excellent living conditions in a climate without extremes; and adequate, efficient, flexible transportation over the Norfolk and Western Railway which, expedites the assembling of raw materials and the distribution of finished products. Here, you are near the nation's great markets, and not many hours from the great port of Norfolk, Va. — an-ice free port that serves the markets of the world. And in Norfolk and Western territory you are assured of plenty of room to grow.

Before completing your plans for your post war plant, consider carefully the territory served by the Norfolk and Western Railway — you will find just what the doctor ordered!

For detailed information about Norfolk and Western territory write: Manager, Industrial and Agricultural Department, Norfolk and Western Railway, Roanoke 17, Virginia.

Norfolk and Western
RAILWAY
FOR BETTER PLANT LOCATIONS

Remedies for Twelve Defects in DUCK FABRICS

HIGHLIGHTS: Special Attention Must Be Given Let-Off, Harness, and Take-Up Motions—Uniformity, Evenness, and Smoothness Important—Quartermaster Lists Acceptable and Unacceptable Imperfections.

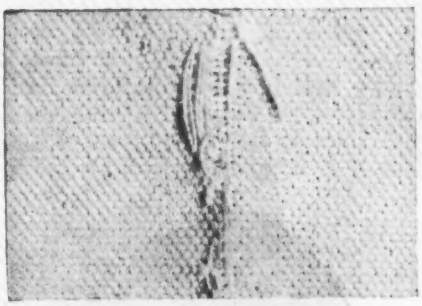


Fig. 1. **Float**—A portion of the warp or filling that extends unbound over fabric into which it should have been interlaced. *Causes:* The breaking out and entanglement of ends with drop wires or other ends in harness; unclean harness; broken heddles; and warp tension insufficient to snap ends out of shed. *Remedy:* Clean harness regularly, put in repair heddles, stretch warp to snap ends back.

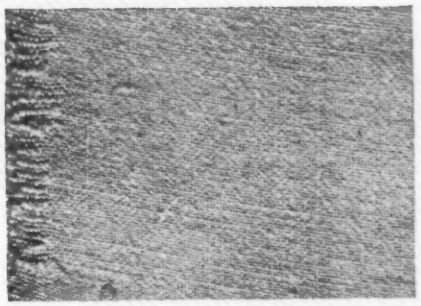


Fig. 2. **Bad Selvage**—Uneven selvage; loops on selvage. *Causes:* Uneven selvage—Yarn too wide on loom beam, causing crowded drop wires; waste accumulated behind drop wires or harness; and long-tail knots in warp yarn. Loops—insufficient tension on shuttle or yarn catching in box. *Remedy:* Make warps to correct width; keep drop wires and harness free from lint. Adjust tension in shuttle to prevent loops.

By DR. THOMAS NELSON

THERE ARE MANY kinds of cotton duck, such as numbered, sail, shelter tent, belt, army, flat, enameled, and ounce duck. All kinds of duck cloths, if they are to give maximum service, must be made uniform, smooth, and even.

In the weaving of all classes of fabrics three important loom motions must be given careful attention: take-up, shedding, and let-off. These points should be given particular attention in the case of ducks, since these fabrics are made from heavy single and plied yarns.

1. TAKE-UP MOTION. All gears in the take-up motion should work freely; and, if a pawl drive is being used, the check and driving pawls should be set to work with each other without undue lost motion. The take-up roll must be covered with suitable material to pull down the cloth evenly and regularly as it is being woven. The driving pawl should be set to pull down the cloth, if possible, when the crank is at about the front center.

2. SHEDDING MOTION. The setting and timing of the shedding motion are very important. The dwell of the cams, in most cases, should be about one-half the revolution of crankshaft. This gives the harnesses plenty of time to change from one pick to another and, at the same time, allows plenty of time for the shuttle to pass through the shed. The harnesses should have an early timing; in other words, when the crank is at or near the bottom center, the harnesses should be level—that is, crossing each other. With this setting, the harnesses will be wide open and will enable the reed to beat the filling into the cloth more easily than would be the case with a late timing.

3. LET-OFF MOTION. A special arrangement of whiprolls should be used to provide drag on the yarn. Such an arrangement was illustrated in diagram, page 90 of the October 1943, issue of TEXTILE WORLD, the heavier cloths generally being made with an I-bar. The setting of the rolls in relation to the timing of the shedding motion should be observed. The top of the highest roll should be from 2 to 6¾ in. higher than the harness eyes when the harnesses are level. This distance will depend on the class of cloth being made, but in all cases the same setting should be used on the same class of goods. (A table giving these distances

Increased demands for cotton duck of all types by wartime procurement agencies have resulted in orders to mills to set aside a certain number of looms for production of such fabrics. For many mills which have had little or no experience in weaving duck, and for others wishing to improve production, TEXTILE WORLD has been publishing timely articles on this phase of cotton manufacturing. This article deals with defects found in weaving duck, inspection requirements, and general loom maintenance. The photographs showing the defects generally found in a variety of cotton duck have never been published before, and can serve admirably in training weavers, fixers, and inspectors. Other articles on this subject which have appeared in TEXTILE WORLD include "Tent Duck for the Quartermaster Depot," July, 1941; "How To Make Cotton Duck," April, 1942; "Duck Manufacture," February and July, 1942; "Duck Woven on Carpet Looms," May, 1942; Manual of Military Fabrics, Part IX—No. 6 Cotton Duck, Type I, October, 1943; Part X—Dyed Numbered Duck, Type II, November, 1943; and "Stepping Up Duck Production," September, 1944.

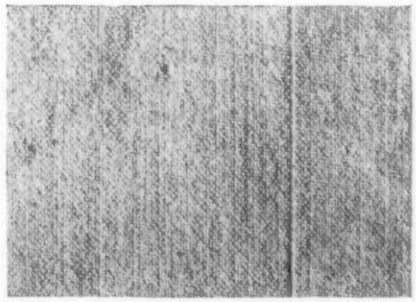


Fig. 3. **Coarse or Big End**—A heavy end in warp woven into fabric and appearing as a heavy rib in fabric. *Causes:* A doubling at the twister where two 2-ply ends are plied, or a wrong draw where two 2-ply ends are drawn into same heddle. *Remedy:* Take out heavy doubling and substitute correct warp yarn from spool; fix misdraw.

ARE YOU LOOKING TO TOMORROW?

Post-war programs contemplate many new products in which wood cellulose may be used effectively and economically. These new products must be developed with exacting care, understanding and skill. Toward this end, Rayonier technical knowledge is available for the production of pulps to meet your special requirements.

Our chemical and mechanical research is coordinated in a constant study of raw materials and processes, customer products and the markets for which the products are intended. This policy already has led to the development of many new pulps and uses which have, in turn, made possible many improvements in rayon, cellophane, plastics and other products.

Before the war, Rayonier research and technical skill brought you such outstanding achievements as rayon pulp from Southern pine, and pulps for acetylation. When the guns have been silenced these same talents and experience will be utilized to meet your new requirements.

By studying your problems now — with the close cooperation of our technical staff — a more purposed and effective approach is assured.

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for five types of looms also appears on the page referred to above.) This setting of the whiproll will cause the top part of the shed to be slacker than the bottom part; and when the reed is beating the filling into the cloth, the slack ends will spread out between the tight ones and make a more even cloth. At the same time the filling will be forced more on the surface of the cloth. On the finer single fabrics this formation would be classed as "cover."

QM REQUIREMENTS. The requirements for cotton duck as issued by the Quartermaster Corps are as follows:

INSPECTION. Each yard of duck shall be thoroughly inspected and burled by passing it over a perch or equivalent process.

ACCEPTABLE IMPERFECTIONS. Defects not occurring more than once every 15 yd. that can be allowed for (¼ yd.) by a string in the selvage are: Bad start-ups, thick and thin places, drawbacks, warp and filling floats, mispicks, one filling thread missing, large slubs, kinky filling, light or mixed filling, small or washed-out spots, and small holes of not more than ⅛ in. in diameter. Strings shall be allowed to remain in duck during finishing.

UNACCEPTABLE IMPERFECTIONS. Presence of the following imperfections in a piece of cloth will cause rejection: smashes, large or repeating oil spots, holes larger than ⅜-in. diameter, continuous reed marks, torn or curled selvages, misdraws in excess of one yard, one or more warp threads missing, and two or more contiguous filling threads missing.

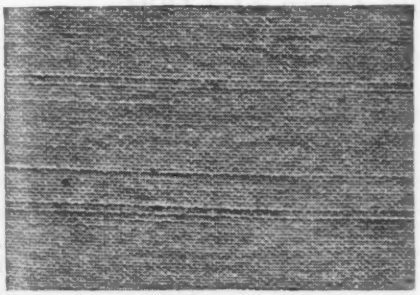


Fig. 12. **Broken Picks**—Fine ribs running at intervals filling-wise of fabric. Broken filling which allows two picks to come together in shed. *Causes:* Cut shuttle eye, tension rings, or pins; sharp center-fork prongs or feeler tips; rough boxes; rough shuttles not entering box straight; poor quilling; improper centering of quill on shuttle; and rough pickers. *Remedy:* Check tension on filling in shuttle, check power on loom, look for cutting edges on shuttle eye, filling fork, or feeler, and see if quill or shuttle is rough or if wind and taper on bobbin are correct.

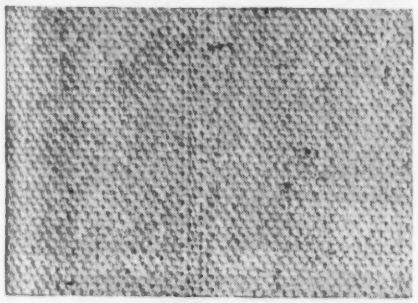


Fig. 6. **Reed Marks**—Sleazy bar appearance warp-wise of the fabric. *Causes:* Open dent in reed. *Remedy:* Repair reed on loom with reed pliers or redraw warp in another reed.

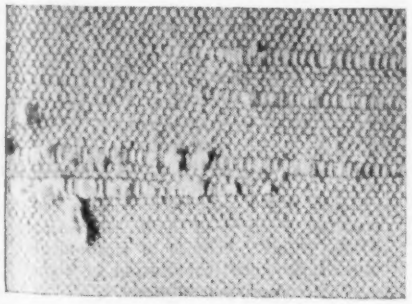


Fig. 10. **Slub**—Heavy tapered bunches of yarn woven into fabric giving the appearance of unevenly spun yarn. *Causes:* Filling sloughing-off bobbin in bunches and going into shed in a tangled bunch. *Remedy:* Rewind filling with proper tension and taper. Check tension on yarn from shuttle.

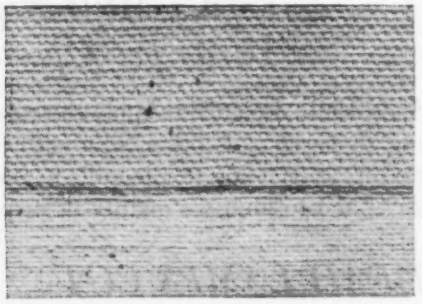


Fig. 9. **Thick Place**—Bar running across fabric filling-wise having more picks per inch and a tighter construction than other normal construction adjacent. *Causes:* Incorrect operation of take-up motion or let-off because of improper adjustment, oiling, or cleaning, or breakage of takeup or let-off parts. *Remedy:* Clean take-up motion, replace broken parts, oil properly, and set to take up properly for the desired picks per inch in fabric.

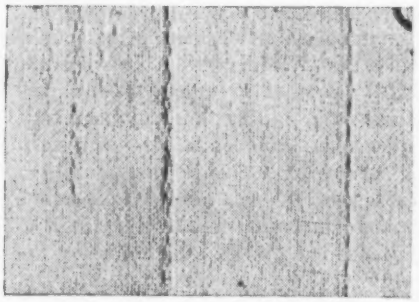


Fig. 4. **Harness Skips**—Picks stitching over warp ends in wrong order, marking cloth at intervals. *Causes:* Harness set too low. *Remedy:* Reset harness causing skips.

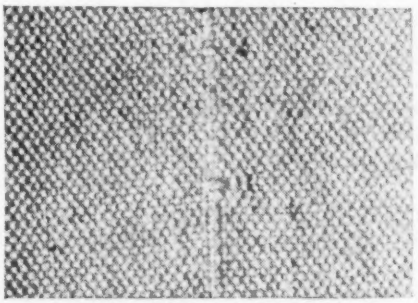


Fig. 7. **Broken End; Flat**—Warp rib formed by two ends weaving together. *Causes:* Broken warp end held by two adjacent ends so stop motion will not work; or if no stop motion is on loom, failure of weaver to patrol loom often enough. *Remedy:* If stop motion is used, check to be sure it is working. Have weaver patrol front alleys more often. Put on coarser reed and add picks to relieve crowded ends.

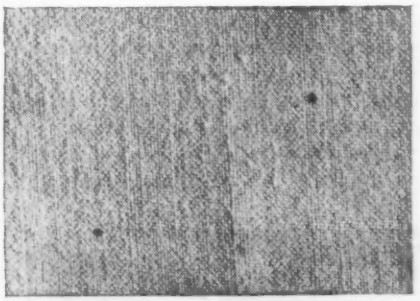


Fig. 5. **Temple Marks—Abraded or plucked marks running warp-wise giving the fabric a streaky appearance near selvage.** *Causes:* Poor temple bur or damaged or bent pins which pluck fibers from the fabric; temples set too close to selvage. *Remedy:* Replace damaged burs or smooth off rough ones.

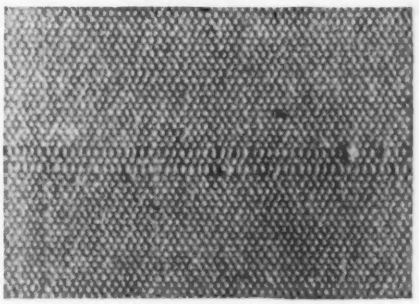


Fig. 8. **Double Pick**—Heavy rib across width of fabric. *Causes:* Filling bunch not made correctly; filling feeler not working; if made on automatic loom, correct filling change not made when filling ran out. *Remedy:* Adjust bobbin—change mechanism to change filling properly. Caution weaver to avoid double picks on startups.

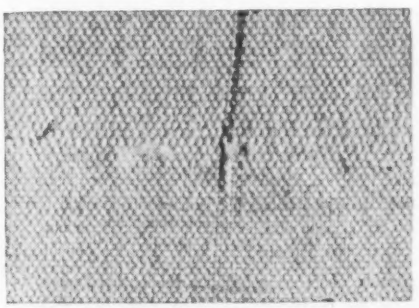


Fig. 11. **Thin Place**—Fewer picks per inch in section of fabric running filling-wise than in regular construction. *Causes:* Incorrect position of the fell of the cloth at the time of a start-up, poor adjustment of take-up pawl. *Remedy:* Pick out thin place and start up again with fell of cloth in correct position. Set take-up pawl and latch properly. (Disregard warp defect shown.)

SYLVANIA NEWS

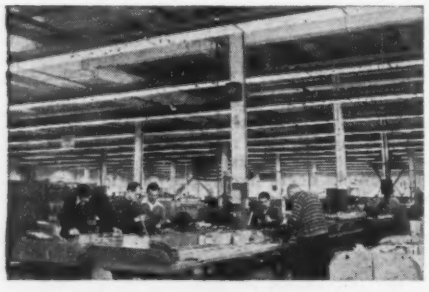
TEXTILE EDITION

NOVEMBER *Published in the Interests of Better Sight and Sound* 1944

Windowless Plants Come in for Study In Postwar Plans

Industrial firms planning new postwar construction are scanning the advantages resulting from the uniform, controlled temperature, humidity and illumination in air conditioned windowless buildings.

Companies operating windowless plants have found in Sylvania Fluorescents an



Sylvania Fluorescent Lighting is used throughout this windowless plant operated by Walter Kidde.

effective means of supplying the cool, glareless light essential to worker comfort and efficiency. The low heat radiation of Sylvania Fluorescents also cuts down the load on air conditioning systems.

DID YOU KNOW...

That pulsating light can be made to "slow down" the motion of airplane propellers so that they can be studied by the human eye? The pulsating effect is produced by Sylvania electronic tubes called Strobotons.

* * *

That Sylvania Germicidal Lamps emit ultraviolet rays that kill most forms of airborne bacteria? They can be used in factories to prevent contamination of products.

* * *

That a tiny device called the Recorder Lamp —made by Sylvania—makes possible the accurate transmission of photos by radio?

Cloth Inspection Speeded with Sylvania Fluorescent Fixture

Verney Mills Report Gain of 1,000 Yards per Operator per Day

Specifically designed to apply the recognized advantages of fluorescent lighting to perch and other silhouette inspection methods, the Sylvania T-1 Fixture is enabling textile mills to increase yardage inspected by as much as 25%, and to improve quality of inspection as well. In a typical installation at the Verney Mills, Manchester, N. H., each operator is now able to inspect 1,000 more yards of cloth a day.

The T-1 Fixture is supplied as a complete unit, consisting of a cabinet of ¾ inch wood, eight 40-watt Sylvania Fluorescent Lamps, and a diffusing panel of translucent glass. Operating accessories for the lamps, together with the lamps themselves, are mounted on a removable back panel to simplify servicing.

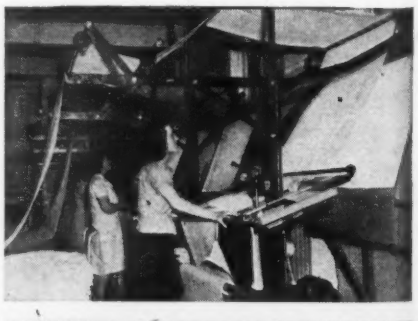
DEAD LAMPS CUT OFF BY STARTER

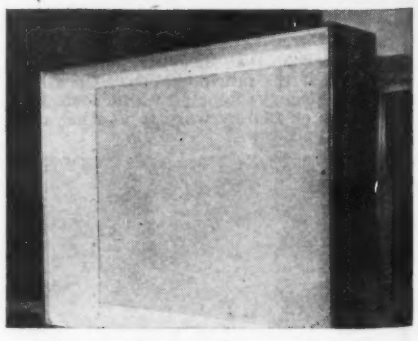
A newly designed fluorescent lamp starter — recently placed on the market by Sylvania—takes over the job of cutting dead lamps out of the circuit.

Lamps that have failed in service, if allowed to remain in the circuit, cause undue power losses, and may result in overheating the ballast and damaging the starter.

The new Sylvania device, known as the C O P (Cut-Out Premium) Starter, will handle the cutting out automatically. Under failed lamp conditions—with starting current repeatedly flowing—sufficient heat is generated in a resistor to operate a bimetal latch which breaks the circuit to the failed lamp. A push button resets the starter for normal operation after replacing lamp.

"But the night shift never knows when it's daylight since we put in Sylvania Fluorescents. Gentlemen, we need a rooster."





(Upper) A Sylvania Fluorescent T-1 Inspection Fixture at work at Verney Mills. (Lower) Interior of cabinet, designed for even distribution of light, free from shadows.

SYLVANIA ELECTRIC PRODUCTS INC.
Salem, Massachusetts

MAKERS OF FLUORESCENT LAMPS, FIXTURES, ACCESSORIES, INCANDESCENT LAMPS, RADIO TUBES, CATHODE RAY TUBES, ELECTRONIC DEVICES

Settings and Methods for Handling RAYON on COTTON SYSTEM

HIGHLIGHTS: Authorities on Technic Share Their Experience with Cotton Mill Men—New Roving Frame Handles up to 3-in. Staple—Possibilities of Roller-Top Card—Bi-Coil Drawing Saves Cost and Space—Denier-Length Relationship Important—Tips on Machine Adjustments.

MANY SUGGESTIONS as to machine improvements and settings to facilitate handling of rayon staple by cotton mills appeared in four papers lately presented by recognized authorities before sectional meetings of the Southern Textile Association. Useful excerpts from these papers follow:

New Developments in Fiber Preparation

By R. M. JONES, Saco-Lowell Shops, *in paper read before South Carolina Section of STA.*

The rayon companies have produced fibers which can be run on standard opening and picking equipment without drastic changes. However, when the length is longer than 1⅝-in., or staples of various deniers or materials are used, new equipment is desirable.

Regular one-process picking, with not over two beaters and the minimum of openings, is satisfactory with staples up to 2 in. if the mixture is not often varied. For small lots and mills making a variety of mixes, two-process single-beater pickers, usually following mixing bins, have found favor.

Many rayons can be carded satisfactorily on the regular revolving flat card. Most settings and speeds are the same as for cotton, except that the licker-in speeds are generally slower. The coarse and short rayons, like similar cotton, can be carded at high speeds, the fine and long fibers requiring slow doffer-speeds. For coarser fibers of 3.00 den. and up, and fibers 2 in. or longer, the roller top card is better. Conversion of flat to roller cards offers following advantages: high production without sacrifice of quality, minimum breakage of staple, reduction of stripping to minimum, better blending, composition practically identical with theoretical composition of original mix, manipulation of long staples, fly waste practically eliminated, and workers and strippers not necessary to grind. Sometimes this card is equipped with two coilers and the web is split, which does no harm so far as production goes if staple is coarse and short, but is not recommended where uniform yarns are wanted unless the laps are perfectly uniform crosswise as well as lengthwise.

The last decade has seen the majority of mills turn to long-draft roving. One of our projects was a drafting assembly that would handle 1½ to 3 in. staple with the minimum of adjustment necessary to exercise adequate fiber control.

These needs ultimately resulted in our "3 over 4" controlled draft roving frame which takes its name from the rolls, as it has three top rolls over four bottom rolls. The initial or break draft is between the back rolls and the middle top roll and third bottom roll. Here, the sliver is drafted and the fibers prepared for the final draft between the front pair of rolls and the middle rolls.

The middle top roll rests on and is driven by the third bottom roll. Between the third bottom roll and the front bottom roll is a small, almost smooth-surfaced, second bottom roll. The middle top rests in the V between the second and third bottom rolls, but is kept from actually touching the second roll by collars on the end of the top rolls. This middle top roll provides a firm and positive grip on the fibers between it and the third bottom roll, and, at the same time, maintains a slip draft on the shorter fibers not long enough to be positively held but long enough to remain in the zone back of the nip between this middle top roll and the second bottom roll.

Thus, it will be noted, for the first time we have a slip draft and a positive draft performed by one top roll, resulting in a more positive control than any previous method.

One advantage is that this frame will make coarse roving from short cotton and other fibers, but it is primarily a long-staple frame. It has a range from 1 in. cotton to 2½-in. rayon, and drafts of 6 to 45.

Postwar Handling of Longer Staples

By R. J. McCONNELL, Whitin Machine Works, *in paper read before South Carolina Section of STA.*

Up to the present, little fiber other than wool, has been run longer than 2½ in. in length. Most counts produced in spun rayon have been coarse to medium up to 30s, produced from 1.50 and 3.00 den. rayon. The new strong viscose-type fibers which are being brought out will open up a new field. While a few mills, like Drayton in Spartanburg, have been producing fine yarns from spun rayons for some time, the great majority of mills kept under 30s. With the strong fibers in the fine deniers (1.00, 1.25, and 1.50) very fine yarns will be made. We have made 310s on our experimental machines, and, while this was more or less of a stunt, in our opinion there would be no problem spinning up to 200s in a commercial way. These fine deniers will not be made in lengths longer than 1⅞ in. because of the tendency of long fibers to nep.

No important fundamental developments have been made in connection with the flat top card for some time notwithstanding the fact that much time and study has been devoted to it. There is important research work going on now in connection with high-speed cylinders and ways may be found to increase production and maintain quality.

Bi-Coil drawing was brought out by us at the beginning of the war and for this reason its sale has been restricted, but there are several hundred deliveries in operation on carded and combed work, and also on spun rayon, and the results have been very satisfactory. We do not claim that finished sliver is any better than sliver made from regular drawing, but there is a tremendous economy in cost of equipment and floor space because of the increased production per delivery which in most cases is about double that of regular drawing. Based on a unit producing 1000 lb. an hour, regular and lap back drawing would cost about 44% more and would require 74% more floor space.

There are a great many things that

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theoretically can be done to improve spinning, but there are penalties attached which make them economically impractical. We have reached the maximum in traveler speeds with present materials. In the drafting field, we have reached the limit it seems, although we are continually experimenting to improve our system. As in the case of our roving frame, for the present, we intend to continue to build our spinning frame along the same lines as we have been, improving it whenever there is opportunity.

Denier-Length Relation in Rayon Staple

By E. H. DREHER, American Viscose Corp., *in paper read before South Carolina Section of STA.*

No one length of rayon staple can be chosen as ideal without taking into account the denier involved. The 3.00 den., 2½ in. staple can and is being processed on the cotton system. However, in processing a 1.00 or 1.50 den. in this long length, it would be difficult to separate the fibers properly, which would result in a very neppy yarn and a poor quality fabric. Up to a certain point, increase in length results in an increase in strength. The optimum strength is reached around 1⅝ to 1⅞ in. for 1.00 and 1.25 den. For the 1.50 den. the strength increases up to about 2¼ in. For 3.00 and 5.50 den. the maximum strength is reached from 2½ to 3 in.

It is helpful to crossblend from as many bales as possible since differences may be found in the moisture content from bale to bale. Mills using rayon staple 100% usually pass the stock through bale breakers prior to picking and directly into the one-process picking. However, where blends of various deniers and fibers are used, it is better to use other methods. There are those who adhere to the sandwich method of blending. Another system also used is the Truslow blending set-up. Blending may also be done on the combers and draw-frames. This latter method is usually preferred when blending rayon staple and cotton to enable handling each fiber separately at the picking and carding. The comber blend is preferably used for fine yarn counts.

In the handling rayon staple at the pickers, consider a reduction in speed of the hopper feeds and beaters, and the making of feed roll adjustments. Less weight should be used on the calender rolls, depending on the denier or blend.

Lickerin speeds on the cards are decreased from 25 to 50% under those used for cotton, particularly in processing 1.00 and 1.25 den. The feed plate should be set off from 0.012 to 0.064 depending on staple length and denier. For 2½ and 3 in. lengths, the wider setting would be used, and for 1⅝ and 1⅞ in. staple closer settings. To avoid large lumps pulling in at lickerin, it is helpful to increase the weight on the feed rolls by about 50%. Another thing that aids this plucking-in is wide feed-plate settings.

In card clothing, 90s and 100s produce satisfactory results on 3.00 den. and coarser. For 1.50 den. or finer, 110s and 120s are preferred. Results are still better on 1.00 and 1.25 when 120s and 130s clothing is used.

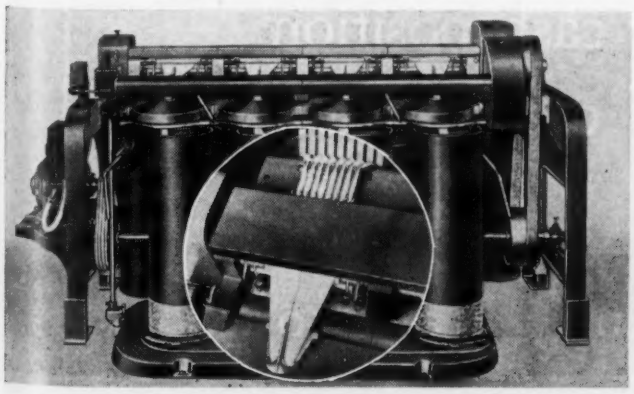
Drawing and Spinning Rayon Staple

By F. S. CULPEPPER, American Viscose Corp., *in paper read before Northern North Carolina-Virginia Division of STA.*

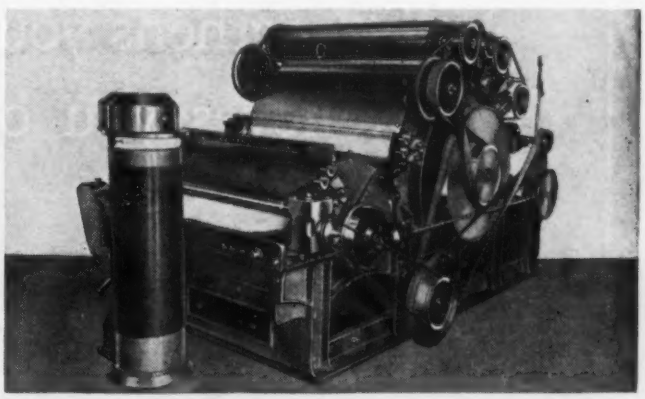
The drawing process for rayon staple is not materially different from that used on long-staple cotton. Proper settings are important since rayon staple is rather easily stretched. We have found that ¼ in. over the staple between the first and second rolls is about optimum. Leather, synthetic, cork, and metallic rolls are being used on rayon staple. For the very fine deniers, leather rolls are preferred. The other rolls work satisfactorily on normal deniers. Large diameter rolls are an advantage and most necessary for the longer staples. Either the two-process drawing system or the long-draft drawing system is satisfactory.

Either conventional or long-draft fly frames are successfully used for rayon staple with some minor changes. As rayon staple requires from 25 to 30% less twist than normal-length cotton, it is generally necessary to reduce the over-all speed of the machine to compensate for increased front-roll speed. It is a customary practice to use front-roll speeds similar to those used for cotton.

Spinning rayon staple is little different from cotton spinning, and is done satisfactorily on long-draft or conventional frames. On conventional frames, it is usually necessary to replace the middle top-roll with a light self-weighted roll since the proper settings can not otherwise be obtained. On standard long-draft machines, it is not usually necessary to make drastic changes in regard to settings when 1⅝ in. staple is used, but this is about the maximum length. Special long-draft frames with large-diameter rolls and wide roll-stands are now available which will handle lengths from 1⅝ in. to 3 in. The twist factor for maximum strength in rayon-staple yarns is lower than for cotton. Therefore, it is sometimes advisable to reduce spindle speeds since lower twists give higher front-roll speeds. Twist factors from 2.75 to 3.25, depending on the type, give maximum strength. Warp yarn is usually spun with the twist factor of about 3.5 and filling yarn with about 3.25.



Bi-Coil drawing built by Whitin which handles either cotton or rayon staple with economy in cost and floor space. Several hundred units are in operation.



Card for which Saco-Lowell has prepared a roller-top conversion. This card successfully handles fibers 2-in. and longer as well as the coarser fibers.

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SYNTHETIC RUBBER Threads Can Be Tested Quickly

HIGHLIGHTS: Natural Rubber More Sensitive Than Neoprene—Synthetic Can Be Woven Successfully if Characteristics Are Determined—Warps Should Have Tension Released Over Week-Ends.

By WARREN A. JOHNS

WARTIME RESTRICTIONS have caused severe curtailment of elastic fabrics. Formerly these fabrics required a considerable quantity of natural rubber for their production. To offset this shortage of rubber, manufacturers of rubber thread have experimented with a synthetic rubber and, in an experimental way, have produced a product that may find use in these fabrics.

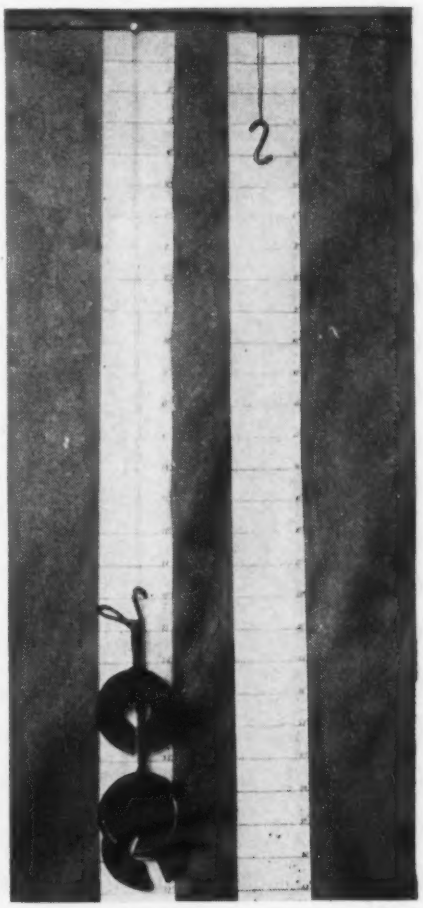
The word "experimental" is used advisedly, because these goods have not been on the market for a sufficient time to demonstrate their practical value against the natural product. Chemical, physical, or mechanical tests can be made in a minimum length of time, but such tests are not as conclusive as actually incorporating these synthetics into fabrics and having them worn by consumers.

TESTING. If a manufacturer of elastic fabrics is not equipped for testing rubber threads but wishes to become acquainted with thread characteristics, he can begin by proceeding somewhat along the lines followed here.

Equipment may consist of a board 4 ft. high, small round-wire hooks, a few tacks, and a piece of point or squared paper divided into 1-in. blocks and sub-divided into tenths. The tacks are driven into the board 1 in. from the top and 3 in. apart. A strip of the point paper extends from the top of the board to the bottom and serves as a measuring device. A 3-in. loop to support a small wire hook is made in the thread, the ends of which are wound around several tacks in the manner of a snub. The weights have a cord attached to them, and this cord is placed in the lower end of the hook. This permits the 3-in. loop of thread to descend to a resting position on the point paper, where the stretch can be easily read.

This method of loop testing will give figures slightly different from those obtained from standard testing machines, since standard machines use single ends. However, results have been checked with machine tests made by others and found adequate.

COMPARING RUBBERS. To establish the relative strength and stretch of natural and neoprene rubber, ten individual threads of each were tested by applying a ¼-lb. weight to each thread loop and recording the resultant stretch; increments of ¼ lb. were applied, and the stretch was recorded for each thread. This was continued until all the threads were broken. To conserve space, only averages are given in Fig. 1, which can be seen at left.



Apparatus for quick testing of rubber threads. (Divisions of 1-in. spaces into tenths not visible in reproduction.)

Fig. 1. STRENGTH and STRETCH for 44s RUBBER YARN

	Average Stretch	
Wt. applied	Natural	Neoprene
.25 lb.	12.89 in.	7.68 in.
.50 lb.	18.18 in.	11.95 in.
.75 lb.	20.42 in.	14.63 in.
1.00 lb.	22.36 in.	16.64 in.
1.25 lb.	24.13 in.	18.60 in.
1.50 lb.	26.10 in.	20.30 in.
1.75 lb.	27.40 in.	21.90 in.
2.00 lb.	29.00 in.	.....
Yd. per lb.	1590	1333
Dia. per end	1/45 in.	1/45 in.
	Natural	Neoprene
Min. break	1.50 lb. @ 23.3 in.	1.25 lb. @ 17 in.
Max. break	2.25 lb. @ 29.0 in.	2.00 lb. @ 21.9 in.
Av. break	1.60 lb. @ 25.6 in.	1.80 lb. @ 20.7 in.

In a comparison of weight, strength, and stretch, natural rubber thread is found to be more sensitive than neoprene, since the initial 4-oz. weight gives an average stretch of 12.9 in. for natural compared to 7.68 in. for neoprene—a fact established by further increments of 4 oz. Natural rubber also shows less fluctuation between the ten threads; but the average strength of neoprene is higher, although the stretch is 4.9 in. shorter. Both rubbers are the same in diameter, but not in weight. Neoprene is 19.4% heavier (therefore yields less yards per

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Fig. 2. EFFECT of TIME

	Natural Rubber	Neoprene Rubber
3 in. stretches to	24.7 in.	18.0 in.
3 in. stretches in 15 hr. to	25.0 in.	18.8 in.
3 in. length at rest	4.25 in.	5.50 in.
3 in. length at rest after 1 hr	3.75 in.	4.75 in.
3 in. length at rest after 5 hr.	3.75 in.	4.65 in.

Fig. 3. EFFECT of a LIGHT LOAD

	Natural	Neoprene
Wt. applied	1000 gr.	1750 gr.
3 in. loop stretches to	7.75 in.	6.50 in.
3 in. loop stretches after 1 hr.	8.00 in.	8.25 in.
3 in. loop stretches after 42 hr.	8.79 in.	10.50 in.
3 in. loop (wt. removed)	3.15 in.	4.00 in.
3 in. loop reloaded	8.40 in.	9.70 in.

pound) and requires a greater weight of rubber to produce a fabric having a stretch equal to one made of natural rubber.

ELASTICITY COMPARED. A weight of ½ lb. was applied to the 3-in. loop and readings taken at intervals of 1 to 10 min. each, allowing equal rest periods between loadings. After repeating this cycle ten times, the final measurements were:

Natural rubber—length with ½ lb. load 21.6 in.; length at rest 3.50 in.

Neoprene rubber—length with ½ lb. load 14.75 in.; length at rest 3.90 in.

This test of loading and unloading simulates the treatment rubber threads receive after being incorporated into a fabric; although it permits the threads to be stretched their maximum length, whereas in a fabric they are not.

By increasing the loading time, a comparison can be made between the shorter and longer periods of loading as well as between the two types of threads. Details are listed in Fig. 2.

Note that natural rubber when released is 4.25 in. whereas neoprene is 5.5 in. under the same conditions. Natural rubber after a 5-hr. rest has a set of .75 in. and neoprene 1.65 in.

LIGHTER TENSION. It is the usual custom, when making elastic fabrics, to apply a tension to a rubber thread that will stretch the thread three times its length when measured under no tension or at rest. Under such a tension a 1-in. rubber thread, when extracted from the fabric, will measure approximately 3½ to 3¾ in.

To obtain such a stretch, it was found that the natural rubber thread required a weight of 1000 grains and the neoprene 1750 grains; therefore tests were made by weighting with these respective amounts and recording the stretch at application of load, 1 hr. after, and 42 hr. after. Results can be seen in Fig. 3.

After repeating the above and allowing the threads to rest for 12 hr., the natural rubber measured 3.15 in. and the neoprene 3.55 in. This indicates that advisability of releasing over the week-end any excessive tension on beams of rubber yarn.

TERMS EXPLAINED. A few explanations of the terms used in discussing these rubbers may be helpful at this point.

First, it is implied that *stress* is a force acting to pull portions of a structure apart; whereas a *strain* is the alteration or deformation of shape or dimensions resulting from stress. Measurement is expressed as a change of length per unit, and within certain limits a definite relation exists between stress and strain.

If a material is stressed sufficiently, the strain increases more rapidly than the stress; and this limit is known as the elastic limit. When stressed below this limit, the ratio of unit stress to unit strain is quite constant; and this ratio is known as the modulus of elasticity of the material. A material so stressed returns to its original shape when the stress is removed; but if stressed beyond its elastic limit, a permanent distortion or set occurs.

Synthetic-rubber threads can replace natural in weaving foundation-garment cloths.

Courtesy The H. W. Goessard Co.

Keeping the foregoing in mind, it is quite obvious that if too great a stress is applied to either type of rubber mentioned here, a distortion will take place. However, this does not mean that these rubbers cannot carry equivalent weights (as shown in Fig. 3). Forces giving equal results are necessary when rubber threads are woven into a fabric, if a normal fabric stretch is to be maintained.

USING TWO TYPES. The relationship of the two types of rubber was found by weaving each type into a corset web

(*Continued on page 200*)

Fig. 4. FABRIC DIFFERENCES

	Natural Rubber Fabric	Neoprene Rubber Fabric
Wt. of 9 in. of fabric	131 gr.	123.5 gr.
Wt. of rubber from fabric	10.15 gr.	14.0 gr.
Length of rubber from fabric	3.62 in.	5.56 in.
Finished picks from fabric	118	106
Fabric stretch	6 to 10.5 in.	6 to 9.5 in.
Ratio of rubber length to fabric stretch	1 to 2.89	1 to 1.74

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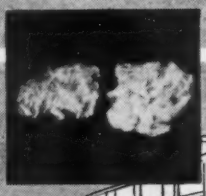
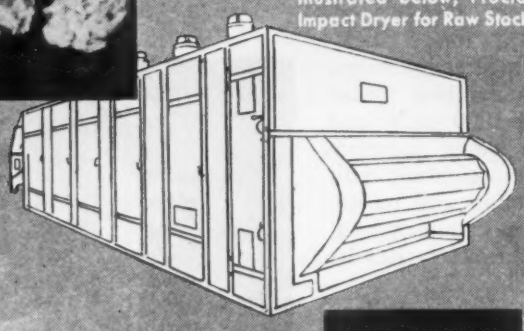


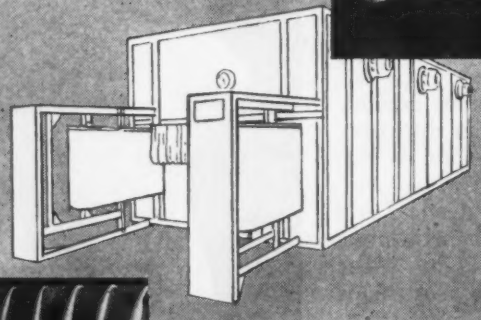
Illustrated below, Proctor Impact Dryer for Raw Stock.



PROCTOR IMPACT DRYER

For speedily, correctly and economically drying cotton or wool raw stock, cotton linters, rayon staple and similar stocks, this is an exceptionally efficient machine. Intermittent impingement of air agitates the stock as it moves through the dryer, thereby assuring uniform drying all through the bed of stock on the conveyor.

Proctor Automatic Skein Yarn Dryer from the feed end.



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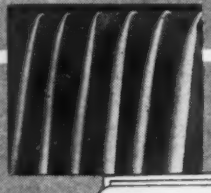
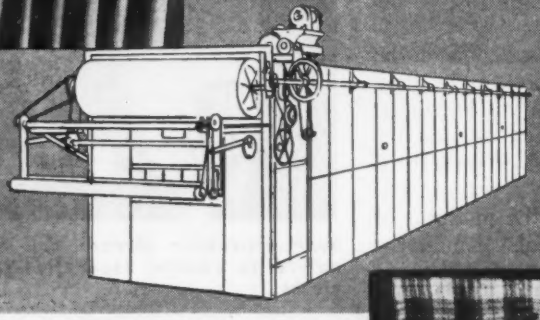
One of the latest dryers developed for the handling of skein yarns, this machine assures uniform results with great savings in time, space and labor. Air-circulation is directed down through all skeins. Travelling skein protector permits maximum loading of poles and keeps air from shunting past bare ends of poles.

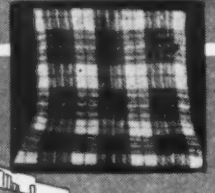


Proctor Loop Dryer for quality drying of piece goods.

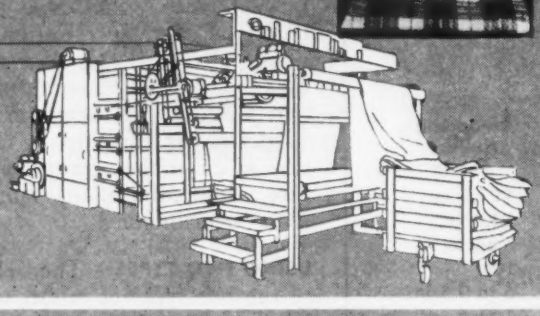


PROCTOR AUTOMATIC LOOP DRYER

Developed for the careful drying of dyed or finished piece goods, toweling, spun rayons, silk fabrics and other materials where final appearance is important, this machine embodies the latest mechanical refinements to assure a top quality drying job every time. With certain modifications this dryer can be adapted to curing certain textiles.



For goods which must be held to width, Proctor Tenter Dryer.



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ASKS SUPPORT FOR STA

Joe C. Cobb, retiring president of STA shown at right above with Dr. Harold DeWitt Smith, made a strong appeal at the annual meeting of the STA in Charlotte last month for financial backing from mill presidents and treasurers. He stated that funds are needed to secure a full-time secretary and treasurer—which he considered the key to a good association.

"I have never thought that the mill presidents and treasurers have realized the value of the association or have given us the backing we deserve . . . I insist that they would never regret giving our association the financial support it deserves. At the same time they should encourage their superintendents and overseers to attend the sectional meetings and allow them to take part in the discussions," Mr. Cobb said.

Versatility Needed in NEW MACHINERY

HIGHLIGHTS: Grover Tells STA Most Equipment Should Handle Natural and Synthetic Fibers—Poole Emphasizes Need for Research and Education — Annual STA Meeting Held in Charlotte—Rogers Elected President.

Fig. 1. M. Weldon Rogers (extreme right), general superintendent, Jackson Mills, Iva and Wellford, S. C., is the newly elected president of the STA. Shown with him at the Charlotte meeting (l. to r.) are T. C. Pegram, superintendent, Erwin Cotton Mills No. 3, Cooleemee, N. C.; F. D. Lockman, Jr., night superintendent, Brandon Corp., Woodruff, S. C.; and H. W. Kiser, superintendent, Drayton Mills, Spartanburg, S. C. Photos by John T. Wigington, Jr.

THE THREAT OF COMPETITION from synthetic fibers and from some natural fibers, the need for full research into the potentialities of cotton, the call for well-trained researchers and teachers to meet the demands of the industry, and the fuller education of the farmer and worker must be considered and acted upon to prevent serious disruption to the economy of the Carolinas, warned Dr. R. F. Poole, president, Clemson Agricultural College, at the 36th annual convention of the Southern Textile Association in Charlotte, N. C., last month.

At the same convention, Elliot B. Grover, head of the yarn department of N. C. State College, outlined probable improvements in postwar textile machinery; and Dr. Harold De Witt Smith, treasurer, A. M. Tenney Associates then presented material from his Marburg lecture given before American Society for Testing Materials on "The Personality of Fibers."

NEW MACHINERY. Speculation as to the type of new machinery needed in the textile industry and suggestions as to some improvements that may be expected were outlined by Mr. Grover as follows:

Opening and picking machinery will be designed to obtain better opening and cleaning, to eliminate small particles of trash, and to achieve more uniform laps. Recirculation of air in the picker room is a "must" if humidity control necessary for good cleaning and uniformity of product is to be maintained. For rayon staple, single-process pickers for blending, tinting, and lap-making are wanted.

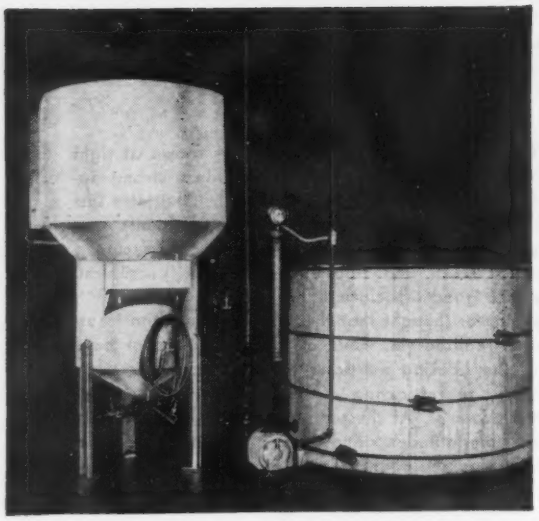
No basic change in the design of the card is expected although the desirability of having one that will handle cotton and rayon is indicated. The roller-top card should be considered for mills intending to manufacture a wide range of fibers and blends.

For drawing frames, attention is needed on the drafting mechanism so as to make improvements comparable to those made in long-draft roving and spinning.

Roving frames should be designed to handle not only cotton but also synthetics. They should be free from tension trouble, should reduce end breakage, reduce cleaning, permit higher speeds and higher drafts, and produce less noise.

ONE-PROCESS ROVING. For spinning, the greatest effort will be directed toward crystallizing the many develop-

(Continued on page 216)



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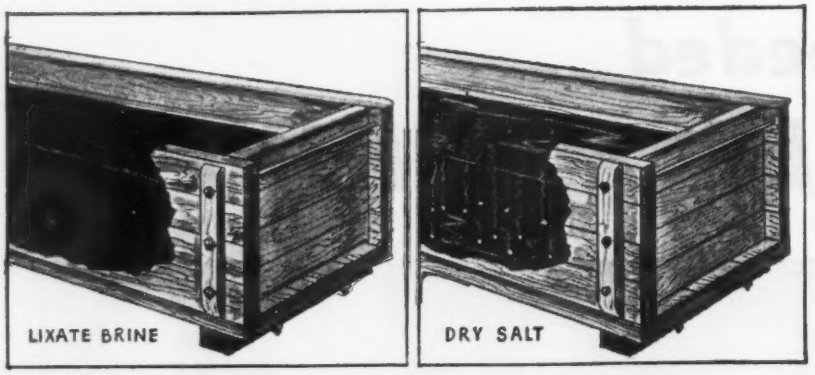
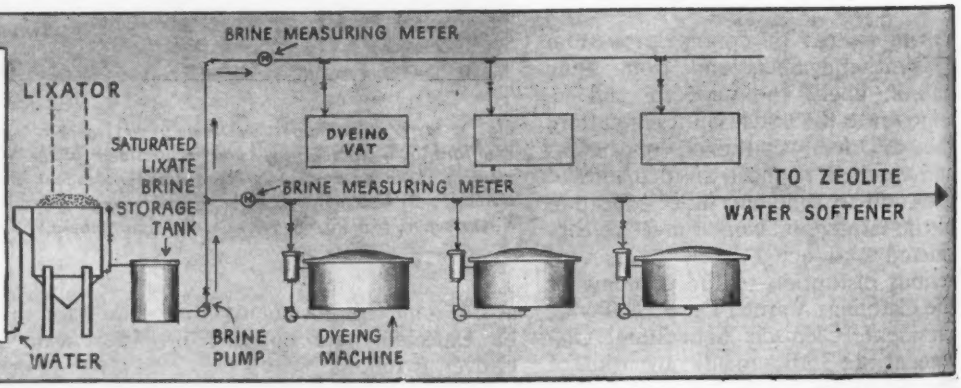
1. GRAVITY WORKS FREE of charge for you in the Lixator to produce 100% saturated brine of crystal clarity from inexpensive Sterling Rock Salt. Automatic in operation the Lixator is conveniently placed at the point of salt storage to conserve time and labor in handling salt. A hopper for continuous self-feeding salt supply is installed above the Lixator. Filtered saturated brine flows by gravity to the storage tank.



2. LIXATE BRINE DISPERSES EVENLY throughout the dye bath. Being liquid there can be no salt grains as in "dry salt" operations to cause local over-concentration. Lixate brine helps to eliminate spotting, streaking and white edges while noticeably improving the finish of the dried cloth making it softer, evener and better to handle.

3. SCIENTIFIC CONTROL of desired brine strength in the dye bath and rinses can save you up to 20% of the amount of salt ordinarily used. Since Lixate Brine is *always* 100% saturated one gallon will contain 2.65 lbs. salt. Thus a definite volume of brine draw-off always means a definite quantity of salt.

4. TURN A VALVE... Lixate Brine is instantly on tap wherever you need it in your plant. Piping of brine eliminates all waiting for supplies of salt to be brought to the vats and delay while dry salt is dissolved in water or in dye baths.



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Few WAR TEXTILES for Early Release

By GLADYS MONTGOMERY
Washington Editor, Textile World

HIGHLIGHTS: Textile Industry's Interest in Surplus Disposal Lies in More Distant Future—Act Has Many Flaws—Olrich Plans Least Possible Dislocation of Trade—Three Methods of Sale

SINCE THE PASSAGE by Congress of the Surplus Property Act, there have been two major developments of interest to the textile industry.

First: Even before the three-man board, which the act stipulates should supervise surplus disposal, has been appointed, it is conceded that the law must be amended in many important respects in order to make it more workable and easier to administer.

Second: While the textile industry has a potentially huge stake in the handling of surplus goods, it has become clear that the industry's interest is not immediate but rather from the standpoint of the future.

As regards the latter point, it is noteworthy that every survey conducted by WPB and every pronouncement from the Armed Services and from Treasury Procurement make it clear that the amount of staple textiles that have been and soon will be declared surplus is small and of little concern to civilians. In this connection a Government official recently stated that he did not see any quantities of textile goods which should cause worry to the market for a year or two—thanks to Lend-Lease, UNRRA, and other foreign purchases.

The textile surpluses now being declared include discarded clothing, and uniforms of WACS and soldiers, used comforters, used blankets, and special related items such as zippers. The uniforms are all being taken by Lend-Lease to ship overseas, also all the comforters and blankets. Comparatively small quantities of textiles have reached civilians; for example, Bemberg cloth, and some rejected nylon from Army Air Corps.

There is no way to judge the type of goods or the quantities of goods which will later come on the market, but Ernest L. Olrich, in charge of Disposal of Consumer Goods, on leave as president of Munsingwear, Inc., promises that "every effort will be made to avoid serious dislocation in our domestic economy." His organization is constantly working to improve the machinery for disposal. The most recent development along this line is an arrangement whereby each of the eleven regional offices will send to Washington each month a list of goods which it plans to offer for sale. After the list has been okayed, it will be given to all the other regional offices, so that every office will have a complete set. A reasonable time will be allowed to elapse before the goods are offered for sale so that prospective buyers will have an opportunity to participate. The list will serve as a notification rather than a catalog. Criticism has been made that a person interested in a certain type of goods has been told that none was going to be put on sale in his home section; he has then phoned Washington and been told that no such goods were in sight. Not long after this he has read that another region has sold a quantity of the item he wanted. It has been the custom in the past that if an item would bring 75% of its assessed valuation, there was no need to refer the matter to Washington; hence the situation complained of which the new arrangement will correct.

A major policy of the Office of Surplus Property is to sell through regular channels except where non-regular channels will pay a higher price. So far there have been no sales directly to consumers, and retailers are advised to get merchandise through wholesalers since the Government machinery is not set up for small business.

METHOD OF SALE. The method of sale will continue to be by sealed bid (formal), by negotiation (informal), and by fixed price. Negotiation is used when trade-marked articles are being sold back to the original manufacturers. The trend in all desirable merchandise will be toward negotiation (informal) bids, whereby several prospective buyers are approached to determine a fair price, then the goods are sold at that figure. It is felt that this affords a better job of distribution geographically, and that it is much speedier. Mr. Olrich declared that the fixed-price method will be used more and more as surpluses become larger. It was used recently in the disposal of a large quantity of mosquito bars.

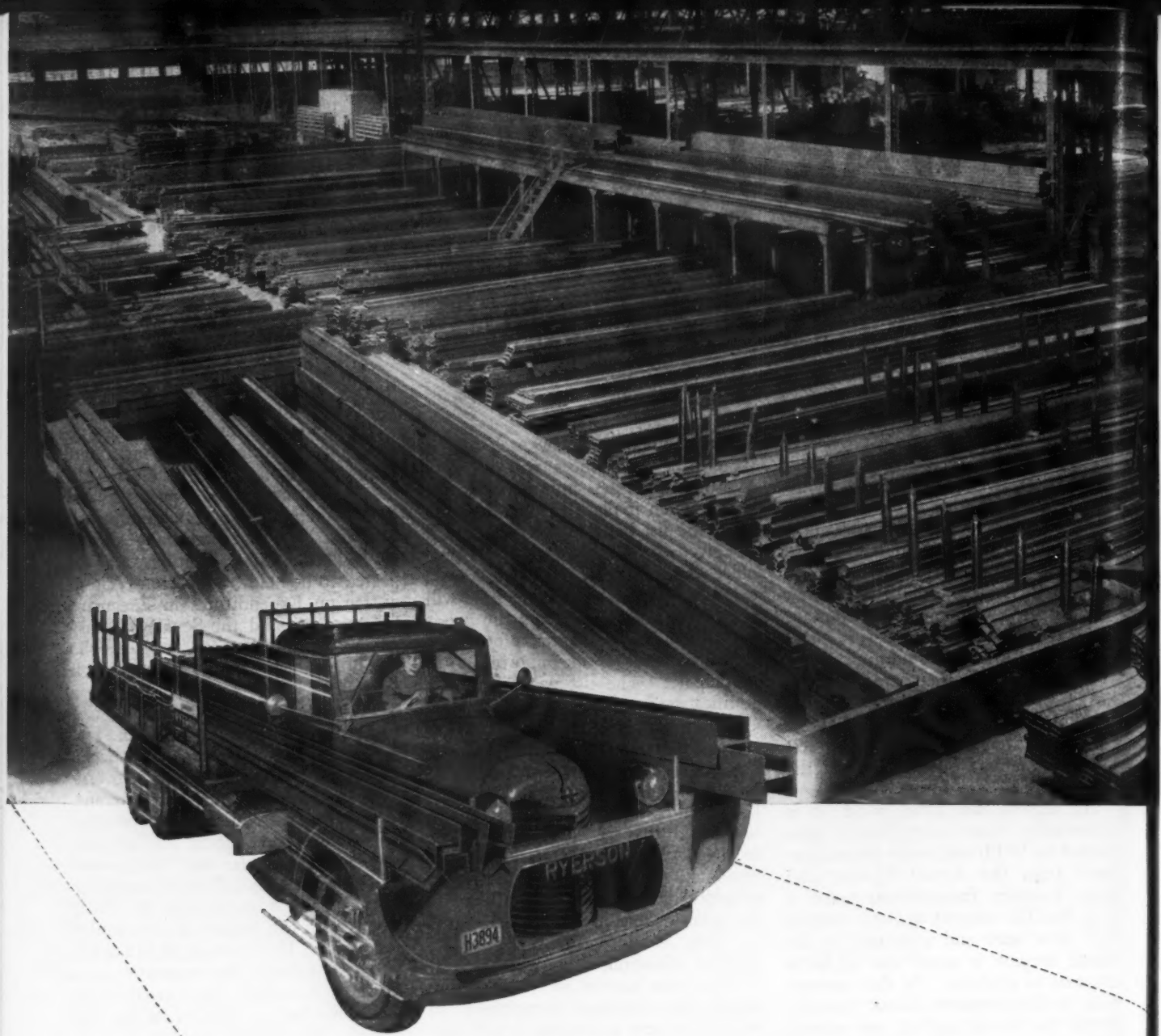
As for the Surplus Property Act, there is practically unanimous opinion in Washington that the measure is cumbersome and unbusinesslike; and in its present form would bring about widespread confusion. It is expected that the Board, when appointed, will propose a number of amendments to Congress and that practically a new law will develop. Hearings are expected to be held by the House Committee on Expenditures in Executive Departments and the Senate Military Affairs Committee, as well as the Small Business Committees of both Houses.

Mr. Olrich has cited several criticisms of the Surplus Property Act. The Act, he points out, provides special opportunities for acquiring Government surpluses for farmers, veterans, for small business men, for cooperative institutions, for political subdivisions, and for charitable and educational institutions. It is difficult to reconcile these special opportunities for these groups with the welfare of the country as a whole. If in catering to the needs of these groups, the economy as a whole is disturbed, these groups may themselves be hurt more than they are helped. Mr. Olrich believes the administration in charge of disposing of surplus property should make its own decisions, and needs of special groups should be considered along with the needs of other groups.

"If several hundreds of thousands of veterans," points out Mr. Olrich, "decide to set themselves up in business, they can, as veterans and small businesses, buy on at least equal terms with large, established buyers, and they may be financed by the Smaller War Plants Corp. Thus we might with one hand be trying to sell quickly through very large buyers, and with the other be taking away their market from them and upsetting their dealer organizations."

The holding by government of large quantities of commodities would be a weight hanging over the market to the disadvantage of private enterprise, he states, "Yet the act provides for the holding of large stocks of commodities, and by its provisions retards the disposal of others."

For article on UNRRA's contribution to China's textile needs, see page 210.



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TEXTILE Equipment NEWS

MACHINERY AND SUPPLIES

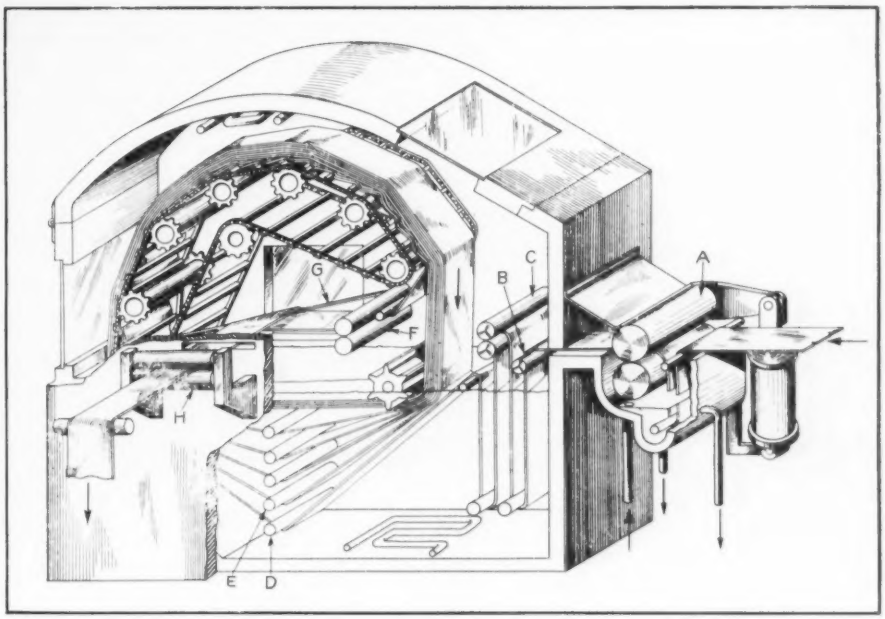
Multi-Lap Continuous Process Machine

A continuous process machine intended to dye continuously with vat colors by the Du Pont Soda Ash Development Process, has been announced by E. I. du Pont de Nemours & Co., Dyestuffs Div., Wilmington 98, Del. This machine, built by Riggs & Lombard, Inc., Lowell, Mass., is capable of dyeing woolen dress goods, fabrics of spun rayon and various combinations of animal fibers, and fabrics of vegetable and synthetic fibers without undue distortion, crushing, or chemical deterioration.

Essentially, the equipment consists of a padder and an enclosed development bath and chamber. Within this unit, continuous wet processes may be conducted without subjecting the fabric to the stretching and distortion usually encountered when carrying the cloth through a long series of carrying and squeeze rollers. At the same time, it avoids the vigorous physical handling, long boiling and time-consuming procedures of the bath methods ordinarily employed for short yardages of wool and other fabrics. Long exposure to boiling baths is admittedly deleterious to wool.

There is a minimum of tension throughout the Multi-Lap operation, in which the fabric is carried into and out of the bath by means of an endless slatted reel or conveyor. The material passes from the padder A through a closed passage into the development chamber, where it is rewet by passage over rollers *B* into the treating solution. After immersion in the treating solution, the material passes through squeeze rollers C. Pressure may be adjusted, depending upon the requirement of the particular process. The material then passes down through the processing liquor under a roller *D* and up over the endless slatted reel or conveyor. It then passes downward under another roll *E*, back up and over the slatted reel and continues in the same manner until a suitable number of laps or layers are built up for the required time of treatment in the development chamber. After the cloth has progressed from the outer to the inner lap, it is taken off through squeeze rollers *F*, over a bar set at 45° G, through draw rollers *H*, and out of the side of the machine at a 90° angle in relation to its previous direction. Heating is provided by suitable coils in appropriate positions in the top and bottom of the development chamber.

The period during which the cloth remains under treatment in the equipment may be varied by increasing or decreasing the number of laps without changing the speed of the machine. In this respect, the principle of the Multi-Lap machine is believed to offer unusual flexibility. This machine provides a means of carrying out certain wet textile processes with minimum tension and with an unusually low ratio of treating liquor to textile materials, and makes possible relatively long periods of liquid-fabric contact in a compact closed unit. Present indications are that the ratio of treating liquor to material need not be more than 15 to 20% of that required for conventional continuous dyeing.

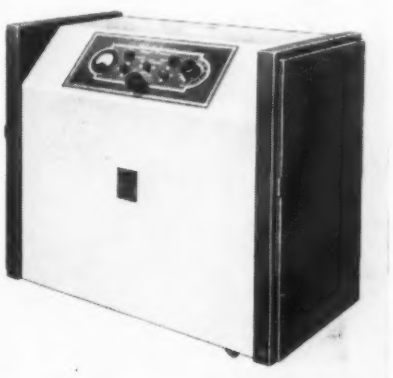


Multi-lap continuous process machine for vat dyeing. (Riggs & Lombard)

High-Frequency Unit Generators

For both induction and dielectric heating loads, a complete line of high-frequency generators with ratings of 1, 2, 5, 10 and 20 kw., is announced by Westinghouse Electric & Mfg. Co.

Completely self-contained, the units require only electrical connection to a 60-cycle power supply and have no external cooling or other auxiliaries. Units of 50 to 200 kw. capacity can be supplied in addition to standard 1- to



One of a new line of 1- to 20-kw. high-frequency generators suitable for use in mills (Westinghouse Electric & Mfg. Co.)

20-kw. ratings. The primary voltage is 220 or 440 v., single phase, for ratings of 5 kw. or lower and three phase for 10 kw. and higher. Housed in a single cabinet are the oscillator, power supply, blower, and necessary switchgear. The high-frequency section is completely shielded to minimize the possibility of interference with nearby communication circuits. An automatic timing control permits load-cycle adjustment to a predetermined time, which can be automatically repeated. Terminals are provided for remote control. Generators are available for frequencies of 450 kc., 5, 15 and 30 mc. for ratings through 10 kw., and 450 kc., 2 and 10 mc. for 20 kw. and higher. High-frequency generators, connected to special applicators, have been used in textile mills for setting twist in rayon and for drying rayon cakes.

Porosity Tester

A patent for an apparatus which can determine the relative porosities of materials has just been issued to Stuart H. Hahn and Robert H. Judson and assigned to The B. F. Goodrich Co., Akron, Ohio. Porosity is tested by the degree of vacuum in a chamber.

Chief object of the invention is to provide a mechanism for determining the relative porosities of various materials by drawing air or gasses through the material and indicating the rate of flow. The apparatus was originally designed for testing the porosity of various types of sponge rubber, but it has many other applications.

Small and compact, it can be easily lifted and transported with one hand. The apparatus consists of a vacuum chamber placed in contact with the material to be tested, a constant-speed, power-driven fan for evacuating air from the vacuum chamber, an outlet port for emitting the air, and a pressure gage to measure the degree of partial vacuum in the chamber and to indicate this on a fixed scale.

With highly porous material, the vacuum created by operation of the apparatus will be slight, and this vacuum increases as the porosity decreases. The scale used with the apparatus may be graduated in absolute units or have no units and be made to show the relative porosities of two or more pieces of material.

Compressor Control

A control instrument that combines seven devices for the control of air-compressor operations into a single unit, has been announced by the Electro-Mechanical Div., Manning, Maxwell & Moore, Inc., Bridgeport, Conn.

This unit, known as a Compressor-Trol, eliminates the necessity of using pipe and pipe fittings, simplifies installation, and reduces the possibility of air leakage. The control is equipped with an Ashcroft Duraswitch, with either an electric or mechanical attachment for operating the two-way unloading valve mounted on the Ashcroft Compressor-Trol casing. A muffler on the compressor discharges into the tank. The muffler acts to break up the discharge and to disperse the air in a manner which insures adequate mixing with the cooler gases in the tank to reduce the temperature and moisture content before delivery. The combined Ashcroft Duraswitch and gauge has a heavy-duty gearless movement, slide-rule dial, a horizontal self-draining and non-freezing Bourdon tube, and the entire gauge is completely removable and replaceable in case of accidental damage. It can be furnished in all standard pressure ranges. It is made in three sizes, namely, ½, ¾ and 1¼ in. and will cover all requirements of tank-mounted compressors up to 15 hp. or 60 cu. ft. per min.

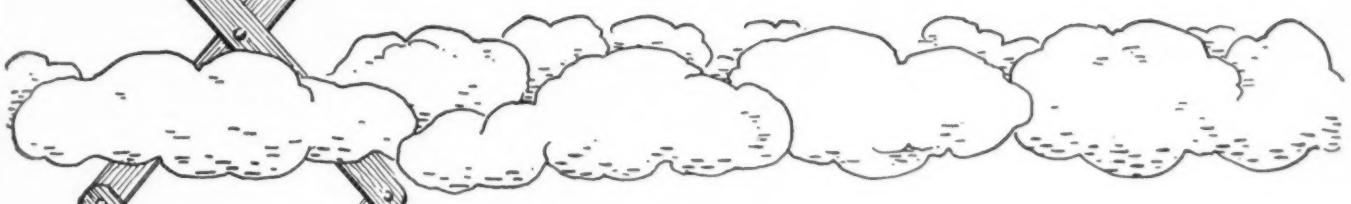
Control for air compressor (Manning, Maxwell & Moore)

Tester for measuring relative porosities (B. F. Goodrich)

Feeding, Cutting and Stacking Machine

A machine designed to handle the feeding, cutting and stacking of towels, napkins, and tablecloths having woven or printed patterns has recently been

On a clear day he can see ahead 10 years



This war has proven that American Business can do all right when the chips are down . . . After the war clouds roll away, and the air is cleared of bureaucratic controls, ten years is not too far for business to see ahead.

For more than 45 years SONOCO has seen eye to eye with the textile industry in solving all major problems pertaining to textile paper carriers. So we continue working at this job today, that we will be better able to go forward when we can again see ahead five, ten and even twenty years.

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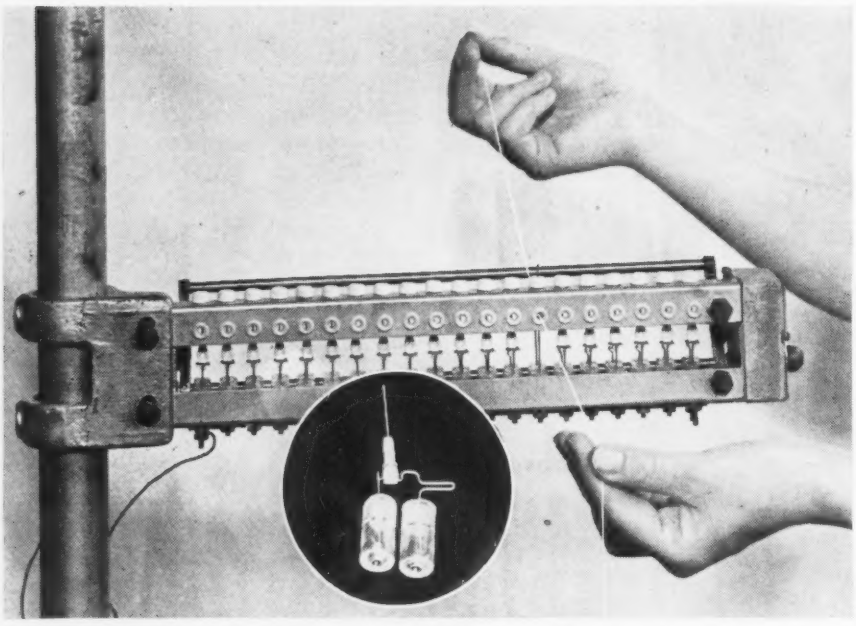


A mercury-pot type of stop motion intended for warper creels. Insert shows the two wires projecting into the Lucite cups which contain mercury (Reiner)

introduced by Sjostrom Machine Co., Lawrence, Mass.

Towels and napkins having patterns either woven-in on the loom or printed on the goods had to be cut individually. This is because the patterns never come in exactly the same place; in many cases the cloth is "bowed", which means that the operator's shears or electric knife had to follow the thread.

Three electric eyes control the mechanism of this pattern towel machine. The operator stands in one position. The exact point of cutting is fed by, the cloth cut and the cut pieces continue on conveyor belts and are stacked in even bundles of 100, 200 or any other predetermined number regulated by an electric counter. Production on napkins running as high as 18,000 per 10 hr. have been obtained.

Mercury-Pot Stop Motion

A warper-creel stop motion operating differently from others on the market, is a mercury-pot type offered by Robert Reiner, Inc., Weehawken, N. J. Its chief advantage is that corrosion and lint cannot interfere with electrical contacts.

The new stop motion consists of two Lucite pots which contain mercury. Each yarn end is threaded through an eye, to which is attached two wires that project into each of the lucite pots. When an end breaks, the wires drop into the pots of mercury, making an electrical circuit that shuts off the warper. It is stated that any low voltage can be used on this stop motion system without resorting to the use of a relay.

The wire protruding into the mercury pot is made in several different sizes. One size is for any yarn up to 300-den. while a heavier wire is supplied for tire cord. Drop wires come in two designs, one of which embodies a hook onto which weights can be hung if desired.

Use of clear Lucite permits visual observation of quantity and condition of mercury. The pots can easily be removed for any reason and additional mercury can be added by means of a dropper.

In addition to the Lucite mercury pots, the new stop motion employs a lift-up bar for holding up the drop wires during threading up. Holdup wires can be used for units not in operation. It is said that the drop wires actuate faster than many now in use since a back bar is not employed, hence the drop wires are permitted to fall faster.

Mill Maintenance TO KEEP 'EM RUNNING

Method of Aligning Pulleys

Correct pulley alignment is essential for efficient power transmission. A method of aligning pulleys, advocated by General Electric Co., and presented in Tannate Watershed Leather Belting Handbook, published by J. E. Rhoads & Sons, is as follows:

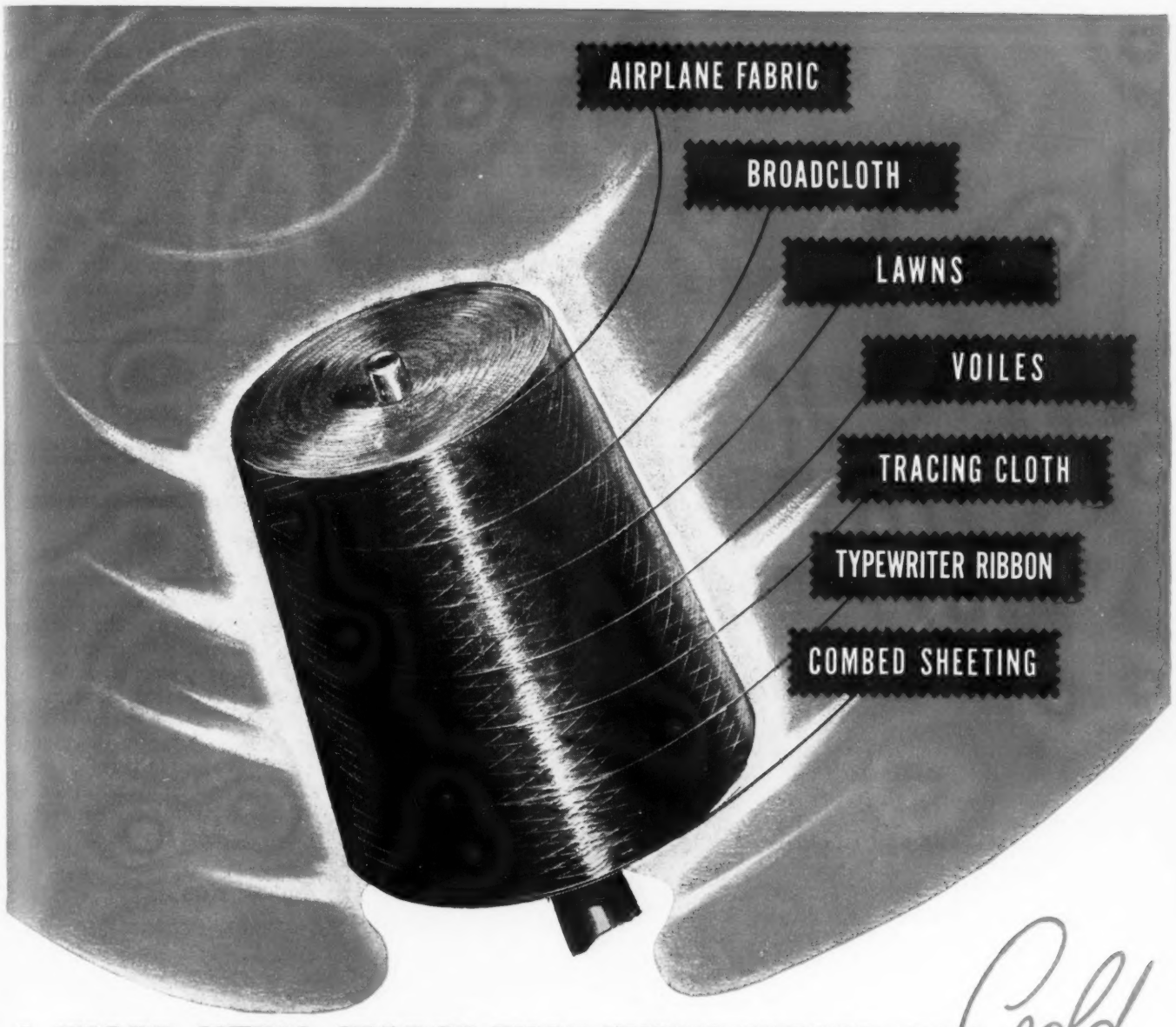
The first step to be taken when aligning two machines is to see if they are level. It is possible for a machine to be out-of-line in more than one plane. If, by placing a level or plumb on the machine, it is found to be out a certain amount, the motor must then be mounted so that it will also be out a like amount.

The illustration shows a simple and easy method of aligning a motor pulley with the driven pulley. First, the crown or center line of the pulleys must be on the same center line, and, second, the motor shaft must be parallel to the driven shaft.

By using a plumb bob and drawing a datum line on the floor, a base of operation is established. Next, drop a plumb line from the center of the driven pulley to the floor. With a square, draw a line perpendicular to the datum line. Next, drop a plumb line from the center of the motor pulley and move the motor up or back until the plumb bob rests on the center line of the driven pulley. From the pulley center line, perpendiculars may be drawn through the centers of the holes in the motor feet. A level should be used to see that the line-shafting is level. If it is not, then the motor feet must be shimmed up so that the motor shaft and the line shaft will be "out of level" the same amount.

With belt drive, a sliding base is nearly always used to allow for belt adjustment. Another method, therefore, is to use the following procedure when aligning two pulleys.

1. Place the motor on the base so that there will be an equal amount of adjustment in either direction, and firmly fasten the motor to the base by means of the four holding-down bolts.
2. Mount the motor pulley on the motor shaft.
3. Locate the base and motor in approximately the final position, as



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– and further, NALEX is more economical to prepare: It requires only 20 to 30 minutes at the boil – instead of the usual 1½ to 2½ hours . . . uses 50% less softener for regular sizing; none for light sizing . . . needs no enzymes or chemicals to adjust its accurately controlled viscosity.

– and still further, NALEX is more economical to use: It resists thinning out . . . assures a uniform size pick-up . . . forms a strong, smooth, continuous film on the yarn that produces an excellent 'cover' effect after weaving . . . and desizes readily.

Ask for a trial NALEX demonstration – NOW. A National technician can run off a few beams without upsetting your regular production.

National also produces: KOVAT, a cold water swelling gum for vat and discharge printing; HOOSIER Pearl Cornstarch; LANAMYL for sizing worsted yarns; FLOJEL, uniform, thin boiling corn starches in all standard fluidities; FIBERJEL "V" for sizing filament viscose yarns; FIBERJEL "AC" for sizing filament acetate yarns; FIBERJEL "SR" for sizing rayon yarns and blends with acetate or wool.

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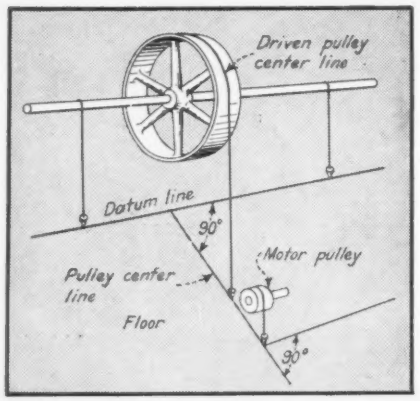


Method of obtaining datum line and perpendiculars to assure pulley alignment.

determined by the length of belt.

4. Stretch a string from the face of the driven pulley toward the face of the motor pulley.

5. Parallel the face of the motor pulley with this string.

6. Using a scratch pin, mark the end positions of the sliding base.

7. Extend these lines.

8. Move the base and motor away from the string an amount equal to one-half the difference in face width of the two pulleys. Use the two extended lines as a guide to keep the base in its proper position.

9. The belt should now be placed on the pulleys to see if it operates satisfactorily. If it does not operate properly, the base may be shifted slightly until proper operation is obtained.

10. Finally, firmly fasten the base to the floor, ceiling, or side-walls by means of lag screws or bolts.

Oil Wicks Cause Ring Breakage

Has your mill been encountering excessive ring-breakage recently on twisters?

If so—check your ring maintenance.

The following item concerning ring-breakage appearing in the July issue of *The Traveler*, published by Victor Ring Traveler Co.

Slow-down in the twisting section occurred in a mill plying heavy cotton yarns using oil lubricated vertical rings and bronze travelers. The trouble seemed to start suddenly, but if it had been observed closely it would doubtless have been seen to build up slowly to a peak where it was noticeable. Travelers started to break, fly off, and wear out much faster than ever before.

Twisting fell far behind the other processes, and to catch up, the twisters were speeded up some 600 rpm., which made the trouble still more serious.

Naturally, the first impulse was to blame the traveler, because it was the travelers that were failing, and they were the same travelers used right along on this twisting..

An attempt was made to correct the trouble with a change in traveler style, with indifferent results. It was not until a thorough job of "trouble shooting" was started that any progress was made toward improvement.

This led to a really close examination of the frames, and it was soon clear why no traveler could give a good account of itself. From one to three dozen rings were found to be badly neglected. Spindles out of line and other deficiencies all indicated that good "housekeeping" had been overlooked for some time.

When these conditions were corrected on two test frames, it was found that the performance of the travelers averaged just about the same as before the trouble began.

DYES & CHEMICALS — PRODUCTS & PROCESSES

Permanent Size or Finish

CELFON; General Dyestuff Corp., 435 Hudson Street, New York 14, N. Y.

This new product is an alkali-soluble cellulose obtained by dissolving pure cellulose in catalytically-activated caustic soda. It is available in either a solution or concentrated form in a wide range of viscosities.

It may be used on cotton yarns as a permanent size. When applied to cotton or rayon fabrics, it is said to produce a permanent finish. Celfon, when applied to cotton, viscose rayon, wool, or blends, will not only stabilize the fabric and minimize slippage, but will also increase its strength and resistance to abrasion.

Mineral pigments, dyestuffs, inert fillers, and various other materials may be compounded with it to obtain permanent and specialized effects.

Solvent Insoluble in Water

TRICHLORCUMENE; Hooker Electrochemical Co., Niagara Falls, N. Y.

This new chemical (also known as isopropyl trichlorbenzene) has the formula, $(CH_3)_2$—CH—$C_6H_2Cl_3$, and is now being produced in experimental quantities. It is insoluble in water but soluble in alcohol, ether, and the majority of commonly-used solvents. It possesses good stability, being quite resistant to oxidization and hydrolysis.

Trichlorcumene has been found compatible with a number of plastic materials, such as: modied phenolic resin, benzyl cellulose, chlorinated piccolyte, phenol formaldehyde, ester gum, rosin, natural asphalt, methacrylate interpolymer, poly terpene resin, piccoumaron, poly vinyl chloride, polystyrene and chlorinated rubber.

The producers state that it is of particular interest to the textile industry as a solvent for fats, oils, waxes, asphalts, and coal-tar dyes. Additional information regarding this product appears in data sheet No. 347.

Polyvinyl Resins

GEON 100 and GEON 200, Chemical Div., B. F. Goodrich Co., Akron, Ohio.

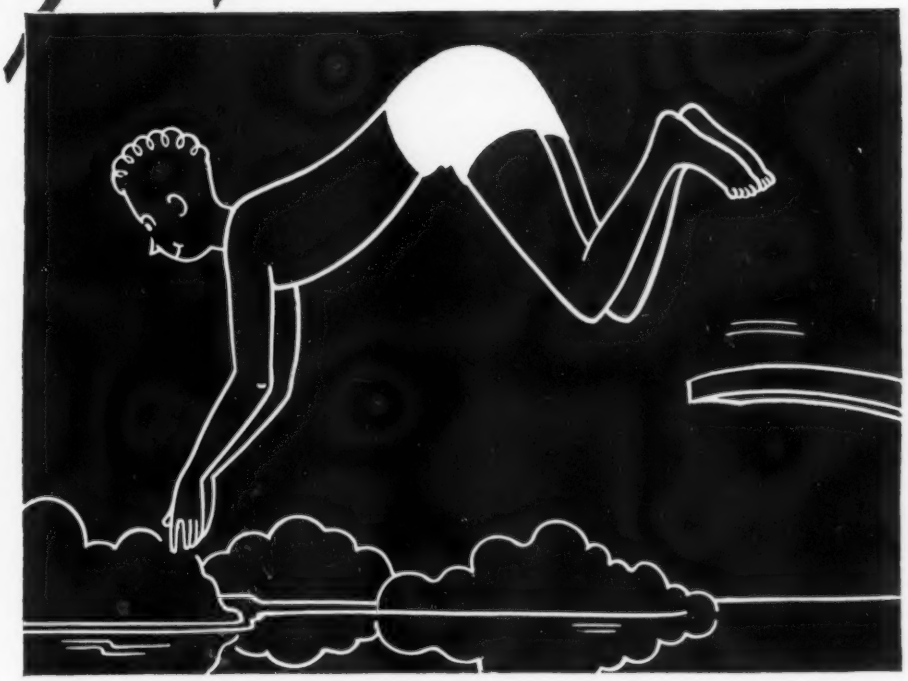
Two types of polyvinyl resins with unique properties have been announced recently by the Chemical Division of B. F. Goodrich Co., Akron, Ohio. The new compounds, known as Geon resins, are suitable for coating textiles and for other purposes. Resins of the Geon 100 series are special vinyl chloride polymers characterized by their thermal and light stability, toughness, and chemical inertness. Resins of the Geon 200 series are vinyl-chloride: vinylidene-chloride copolymers which combine increased solubility and thermoplasticity with high stability, chemical resistance, and wide useful temperature range.

Flame Resistant Coating

HERCULES POWDER CO., Wilmington, Del.

This company announces the development of a flame resistant nitrocellulose composition which may possess possibilities as a coating for textiles. This development is one that has been long desired by users of nitrocellulose in its various forms.

The name "Porp" was identity for him



A real water rat, they always called him "Porp the fish" and his future destiny was fixed. He has never outgrown his fondness for swimming. Even now Porp's a lifeguard, following the sun from Maine to Florida. Thousands of seashore visitors know him as "Porp," only a handful know his given name. "Porp's" label is fixed now and for the future.

There is nothing quite like a well known name marked on a new product to give it an added boost to success. Attractive, well planned identification never stops working; it firmly imprints your name on the consciousness of dealers and consumers as well. KDTs and Prestomarks provide economical, attractive, distinctive identification and decoration on every type of textile product. Kaumagraph Lithography for box wraps and labels rounds out complete identification for your products.

Now, more than ever, is the time to develop an identity that will give your products an advantage in coming highly competitive markets. Start now to create a business personality as lasting as "Porp's." Send for a Kaumagraph Identification Man TODAY for it won't be long now when Kaumagraph facilities can once again be turned from war production to full time service for civilian requirements.

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Kinks AND SHORT-CUTS

A $25 WAR BOND FOR YOUR IDEA

A $25 War Bond willl be awarded each month for the most useful "kink" published in this department. This contest is open to all readers of TEXTILE WORLD, and there is no limit to the number of entries any one person may make.

Contributions must be received not later than the last day of the month to be eligible for the award for the second succeeding month. Items may pertain to production methods, mill engineering, safety, cutting costs, improving quality, speeding up production; in brief, any little device, stunt, kink, or short-cut which you have tried out in your own mill and which you believe will be helpful to other mill men. Items should contain sufficient detail to permit other mill men to utilize the ideas in their own operations. Previously published material is not eligible for the award. Judges of the contest are the editors of TEXTILE WORLD.

TEXTILE WORLD shall have the right to publish any items submitted. Items which are accepted will be paid for at our regular rate for this type of matter with extra payment for appropriate sketches or photographs. The sketch you submit need not be a finished drawing.

In writing to this department, give your real name and address as evidence of good faith and to permit payment for items accepted. Your identity will not be published unless you give permission.

Contributions should be addressed to: Technical Editor, TEXTILE WORLD, 330 West 42nd St., New York 18, N. Y.

★ **THIS MONTH'S PRIZE WINNER**

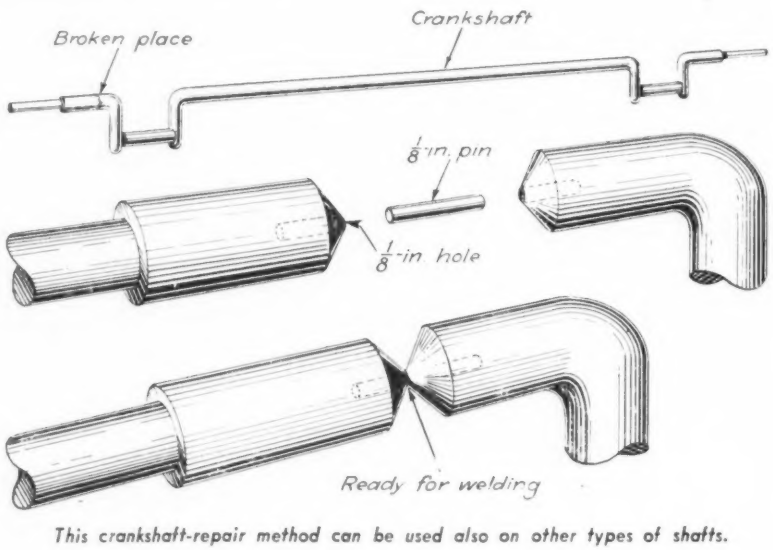
Align Centers When Repairing Broken Crankshafts

It has been quite hard to obtain new crankshafts and they are very expensive, but there is a very efficient way to repair broken and worn out shafts at a minimum cost.

In repairing a broken crankshaft the most important thing is to keep it straight. To do so, put the broken pieces in a lathe and drill a $\frac{1}{8}$-in. hole in the center of both pieces and turn down the ends at a 60° angle. Then match the two ends with a $\frac{1}{8}$-in. pin as shown in the sketch, and weld the shaft together. When the welding job is done, put the whole crankshaft in the lathe again and check it for straightness. If the crankshaft is not straight it is easy to straighten it as the center is true. Finish by turning down the welding spot to the correct size.

If the shaft is worn badly at any place, cut out the worn piece and weld in a piece of steel the same size, in the same general manner as described, except that two centering pins will be needed.

If the crankshaft breaks in the crank, it is very hard to do a good repair job. The piece can be kept to repair some other crankshaft. (K-252) Leandre Roy, Orillia, Ont., Canada.



This crankshaft-repair method can be used also on other types of shafts.

Harness Strap Punch Speeds Fixers' Work

Loomfixers sometimes find it tiresome to punch holes in harness straps with a small plier-type punch. As a rule, most straps must either be repunched or all of the holes made by the loomfixer.

A tool which makes this job easier can be made from material usually found in a weave room. Material necessary follows: one piece of $\frac{1}{2}$-in. square key stock 12 in. long, one piece of flat iron 5 in. x $\frac{1}{2}$ in. x $\frac{3}{8}$ in., one copper rivet, one bolt 2 in. x $\frac{3}{16}$ in. or a shuttle pin from an automatic loom shuttle, and one hollow punch bit.

To make the tool, drill and tap the

(Continued on page 156)

CROCKER-WHEELER MOTORS for TEXTILE MILLS

FEATURES

1. Totally Enclosed Cowl-Cooled type minimizes fire hazard, resists corrosion. Protects against acid or alkali fumes, splashing or dripping corrosive liquids, air-borne moisture, steam, corrosive gases, conducting dusts, metallic chips, lint, etc.

2. Fin Type single shell construction, with all surfaces exposed and a readily removable fan shroud, gives non-clog ventilation. Easy to clean...foreign matter passes over the surfaces of and not through the motor.

3. Patented GROOVSEAL antifriction bearings — no greasing needed for at least a year—minimizes maintenance. Seal permits use of softer grease, for better lubrication and longer bearing life. Water-tight — Dust-tight — Air-tight.

4. Vacuum Impregnation with high grade insulating varnish seals out foreign matter and moisture from each individual coil...makes windings a homogenous mass... reduces hot-spot temperature and lengthens insulation life. Adherence of varnish prevents vibration of wires inside or outside of slot.

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The design of the motor protects it against steam, drip, splash, acid, fumes and corrosion in wet processing in the Dye House, Bleachery and Finishing...also against dirt, lint and fire hazards of all preparatory machinery operations.

Crocker-Wheeler, one of the leading manufacturers in the field, specializes solely in the design, manufacture and application of electric power equipment.

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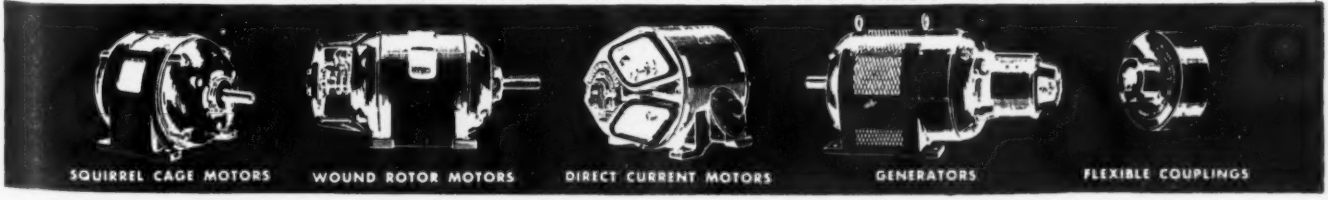
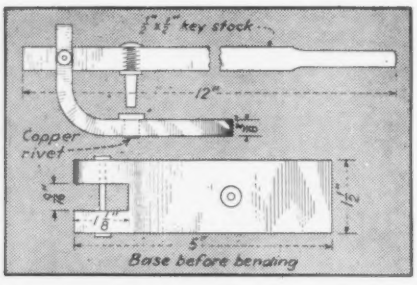


KINKS & SHORT-CUTS

(Continued from page 154)



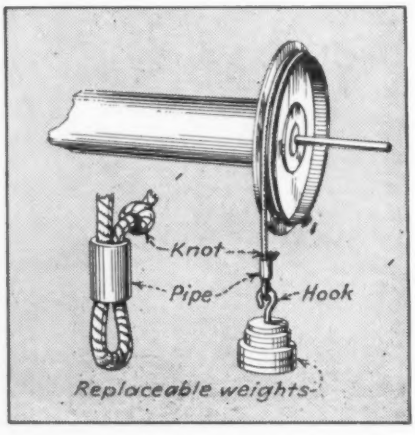
Pressure on lever quickly punches holes in harness straps.

key stock to fit the hollow punch bit, also bore a hole for the bolt or shuttle pin. The end should be rounded off for a handle. Cut a slot $\frac{9}{16}$ in. wide and $1\frac{1}{8}$ in. deep in one end of the flat iron stock. Drill a hole for the bolt or shuttle pin. Bend the iron up about $1\frac{1}{2}$ in. at the cut-out end. After the parts are assembled, drill a hole directly under the hollow punch for the copper rivet which will act as an anvil for the punch. To use the tool, put it into a vise, or drill holes and screw it on to a wooden base. *(K-233)*

Pipe and Knot Permits Quick Rope Adjustment

The simple trick shown in the sketch illustrates a quick method of adjusting warp tension ropes when weights sag downward to the floor.

Merely slip a short length of pipe of suitable diameter over the rope as shown, tying a knot in the loose rope-end to prevent slippage during loom running. When height adjustment is desired or required, the weight is lifted and the rope pulled through the pipe. The knot is slipped to desired position quickly. *(K-230)*

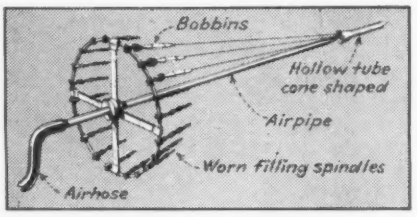


Piece of pipe used for adjusting rope quickly.

Air-Operated Device For Stripping Quills

Shown here is a filling-bobbin cleaner that is useful for cleaning bobbins that have too much yarn to be machine-stripped or pulled off by hand. Any machine shop has the necessary materials on hand to make one of these and the total cost is very little.

With this device, one operator can blow off as much as 350 lb. of bad yarn in 8 hr. and the value of this blown waste sometimes is higher than that stripped or cut off.



Air used to strip yarn off filling bobbins.

This arrangement can also be used to run down overly-full bobbins, tangled bobbins, and bad doffs caused by break-downs. If the operator watches closely, much yarn on the bobbins can be salvaged to be re-wound or re-run. *(K-222)*

Barrel Lifter Made From Cable and Rods

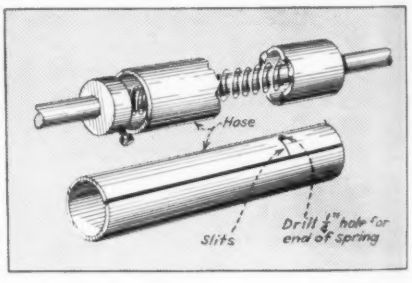
We had virtually no equipment in our slasher room to handle heavy barrels of slashing materials, but we did have a good overhead handling system and an idea. The accompanying illustration shows the idea—and it works. There are only a few items to watch when making the "barrel hoist" as we call it. One is to be sure that the length of the rod is less than the diameter of the smallest barrel to be handled. Another is to be sure that the rods have heads or nuts on each end so that the cable cannot slip off them. *(K-164)*

Protector-Rod Spring Cover Prevents Stains

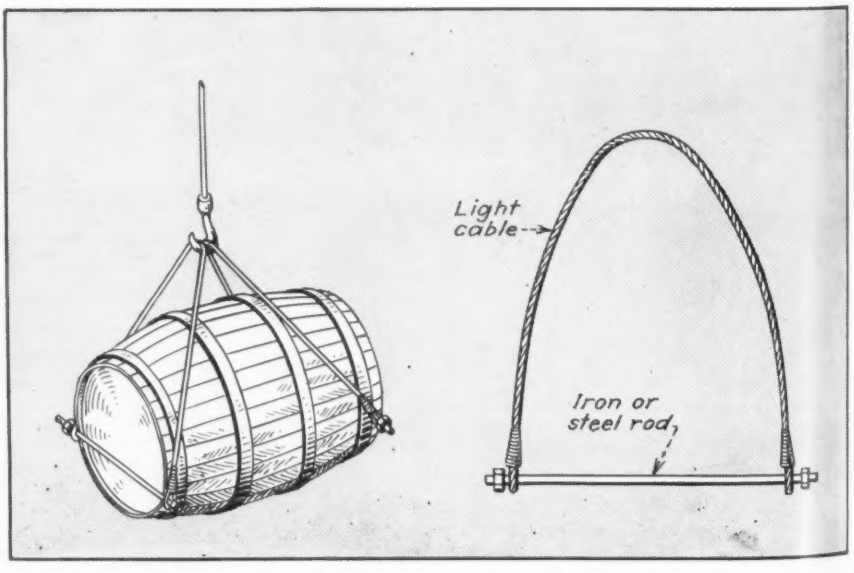
Grease and oil stains on cloth from protector-rod springs is a big problem in many weaving mills. Such defects can be overcome by using discarded water hose as a cover for the spring to prevent oil splashing.

Measure the length of the protector spring from collar to opposite end of spring. Cut the hose $\frac{1}{2}$ in. longer than the measured length. Cut a slit in hose as shown in the illustration. Place the hose over the spring, and turn it so that the end of the spring will fit into the shorter slot as shown. This manner of fastening will keep the section of hose in place without any possibility of its slipping off while

(Continued on page 158)



Old hose serves as cover for protector-rod spring.



Lifting device for handling barrels.

More Uniform Yarn
(and More of it)
Results when DAYCO ROLL COVERINGS are Installed!
MAKE THESE 12 ADVANTAGES YOURS
1. Improved drafting
2. No grooving, less ends down
3. Unaffected by temperature changes
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7. Proper cushioning
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Greater uniformity of yarn and increased production *both* now result from the use of Dayco Roll Coverings.
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Yet that surface is so tough it never grooves, never hollows out, flattens or distorts. It has no cold flow. And, since Daycos' excellent cushion is static-free, lapping-up is practically unknown. So from precise cost-accounting records, *the cost per hour of operation with Dayco Roll Coverings is unqualifiedly less!*
Check all 12 advantages you get from Dayco Roll Coverings. See for yourself how Dayton's Technical Excellence and its years of specialized textile experience will help you, too! Get the facts. Write, *wire*, today.
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Roll Coverings by
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REG. TRADE MARK THE DAYTON RUBBER MFG. CO.
The Mark of Technical Excellence in Synthetic Rubber

KINKS & SHORT-CUTS

(Continued from page 156)

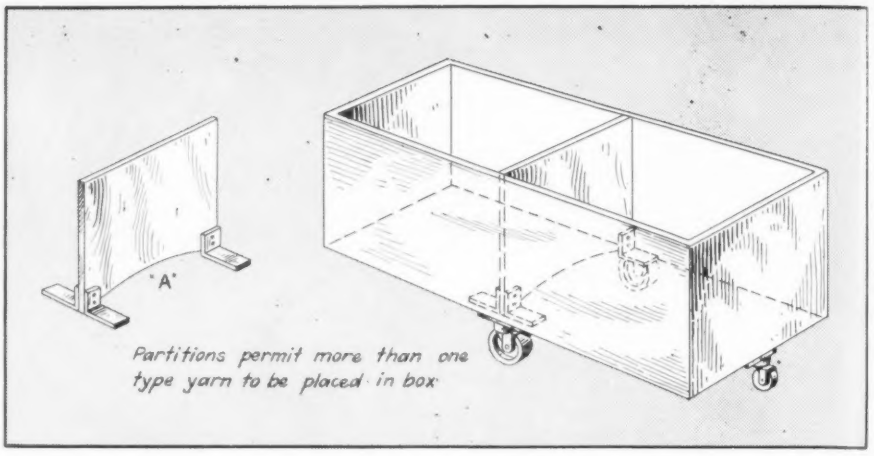
the loom is running or banging off.

Grease the protector spring before applying covering. A well-greased spring prevents wear on both spring and rod. If hose is not available, a suitable covering can be made from thin, pliable leather or even canvas. Such covering must usually be stapled in place. *(K-238)*

Reed Vise Realigns Frames and Wires

We are using some reeds in our weave room that are so old that their constant use in the looms has caused the frames to work down in places, leaving the dents or wires sticking out. For a long time, we have been placing such reeds on a bench and have used a block of wood to drive the frames in place. Sometimes, faulty reeds are discovered on the looms, and then it is difficult to realign the frames. Accompanying is a drawing of a vise we now use to realign frames. It was made of scrap parts and saves us much time and trouble on reeds in this condition.

For the main part, we used a piece of pick shaft metal 1¼ in. x ⅞ in. x 7 in. A 1-in. length on each end is cut down to ¾ in. x ⅞ in. and a ⅝ in. hole is tapped in the center for a bolt. A ⅝ in. x 6 in. bolt, with a short piece of shaft threaded onto it and a hole drilled through, makes the handle. One-inch flat iron is used for the upright and bottom pieces. The uprights are riveted on the bottom corner while a ⅞-in. bolt is used on the top corner. On the bottom of the screw is a piece of ¾-in. key stock 8 in. long. It is beveled on the ends as shown. The screw is turned down to fit a ⅜-in. hole in the center of this piece and is headed so it will turn freely. When in use, the vise will slide over the end of the reed to the place that needs drawing into position. *(K-241)*



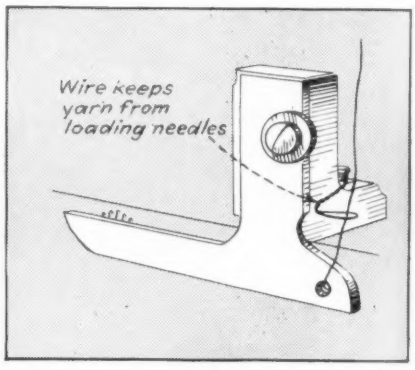
Many times partition will be near one end instead of in center.

Movable Partition Useful for Small Lots

In mills making a large number of kinds of yarn, either warp or filling, there is frequently the problem of taking care of small lots of yarn, without tying up so many boxes. The movable partition, shown as A in the illustration, when placed in a yarn box, allows two kinds of yarn to be placed in the same box without danger of mixing. For very small lots of yarn, more than one partition might be used. A reduction in the number of boxes used also results in a saving in floor space. *(K-210)*

Wire Guide Cures Trouble With Soft Worsted Yarn

A knitter in a small plant had feed troubles when plating a fine worsted yarn over cotton. The worsted yarn had a rough, soft twist wound on a very soft cone which caused no end of trouble to run. If a slight tension was used, the stop motion would operate; if more was applied, the yarn would break out at the feed. The most difficult problem was to hold the yarn steady to stop the end from jumping out of the feed and throwing a loop that would catch in the dial needles,



Wire guide for knitting

run between the dial and cap, and load the dial cams with yarn. This would mean that every dial section would have to be taken off and cleaned out.

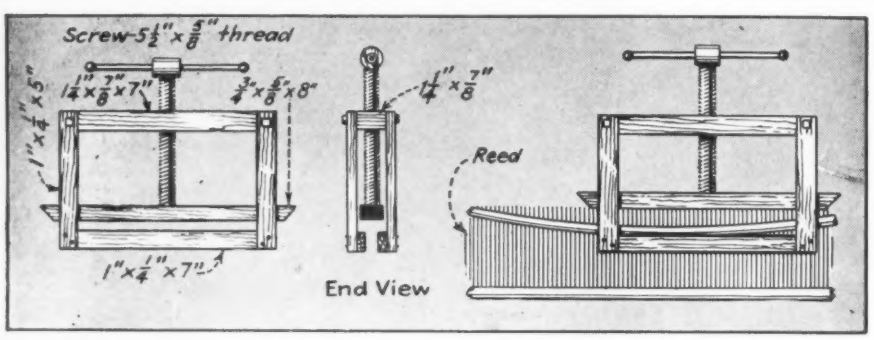
To stop this trouble, we mounted a thin wire at a point that would hold the yarn close to the feed and not allow any slack to touch the feed. Thus we cured the loaded cams. Some types of knitting machines have guides at this point, probably to avoid trouble such as we had. *(K-214)*

Rod Used to Prevent Tangled Harness Mounts

When removing patterns from looms, harness mounts are usually unhooked and allowed to swing free. Then as the new warp is mounted, the cords are often over the wrong sheaves, and several minutes time is required to pick out the right mount for the correct shaft. Once in a great while, a wrong tie-up is passed unnoticed, resulting in a wrong shaft being lifted in the weave, and a full piece or more may be woven off before the defect is detected in the examining department.

On weaves requiring a large number of shafts (from 6 shafts up) the device shown in the sketch will be of great

(Continued on page 160)



Special vise used to repair reeds.

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IF static is complicating your mill procedure and hindering your production schedules, it will pay you to Fybrolize.

By using Fybrol processing oils, static, with all its troublesome and costly effects, is prevented. The anti-static property of Fybrol processing oils is laboratory-controlled to assure its retention and proper functioning throughout every stage of production.

Fybrol stays with the fibre and provides maximum lubricity throughout the run. As a result, spinning yields are increased, greater tensile strength is obtained, fly waste is substantially reduced and scouring is simplified.

Helping you to solve the problem of static is only one of the many ways a Sonneborn technical representative can assist you. Write or wire for this service today. No obligation, of course.

There is a specific type of Fybrol available for the processing of every kind of wool and worsted knitting and weaving yarn.

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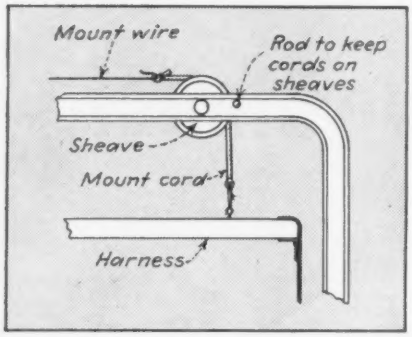
WOOL and WORSTED Processing Oils

KINKS & SHORT-CUTS

(Continued from page 158)



Drill hole so rod clears cords by 1/16 in. to prevent chafing.

help in preventing tangled harness mounts. It allows the shafts to be secured correctly on the first tie-up.

To apply this attachment, drill holes to take a ¼-in. rod as shown in the illustration. Insert the rod and flatten the ends to secure it permanently in place. If desired, the rod can be threaded and bolted in position.

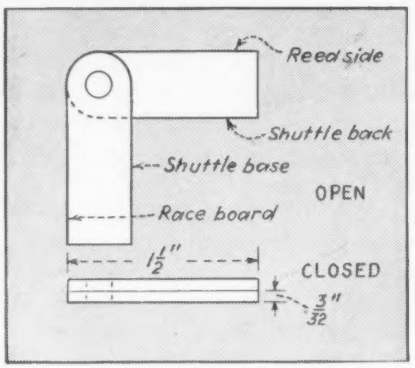
The rod fits directly in front of the harness mounts and sheaves, preventing the cords from shifting out of their respective sheaves. *(K-229)*

New Method of Cutting Waste Off Roving Spools

Teaching new boys how to cut roving off woolen ring-spinning spools requires great care. Sharp knives are used. Most mills cut roving off the spool while it is held in a vertical or upright manner. The idea I have is to cut the yarn off the spools when in a horizontal position. The illustration shows how it works.

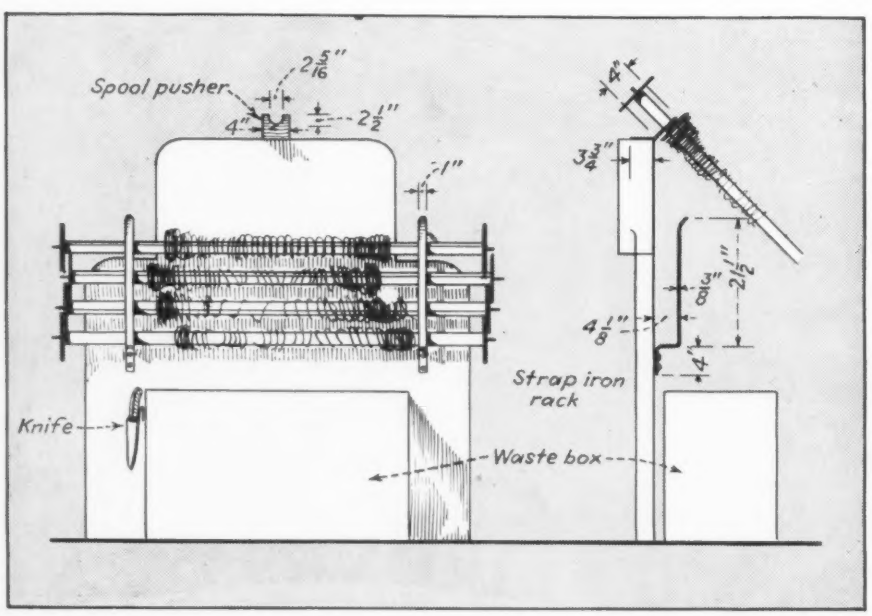
A spool is taken off the machine and is placed against a "spool pusher" to push the waste together. It is then placed in a rack and a knife is drawn across the groove in spool to cut the waste off. The knife is replaced and the waste is dropped into waste box. *(K-204)*

Simple Gage Designed For Loomfixers' Use



Gage is useful in checking angle of reed, raceplate, and shuttle.

The accompanying sketch shows a neat, compact, squaring device that can be useful to every loomfixer. It can show the angle of the reed and the back of the shuttle box; and, on the inside, the race plate and back of the shuttle. This gage is not costly to make. *(K-199)*



This method of cutting waste off woolen roving spools minimizes chance of injury.

Special Edge Helps Rayon Taffeta Cloth

"Frayed-out" edges can give an otherwise excellent cloth a cheap appearance. Such edges sometimes also look fuzzy and need considerable picking in the clothroom. We found this to be especially true when employing a heavy denier yarn and a taffeta weave for the edge. We found we could overcome this trouble if the first two dents of the edge on the one side and the last two dents of the edge on the other end were entered on 4 extra shafts and if the taffeta binding was replaced by a Gros de Tours edge. This change, plus edge spools with the proper tension, gave us the perfect selvages illustrated and was well worth while. *(K-127)*

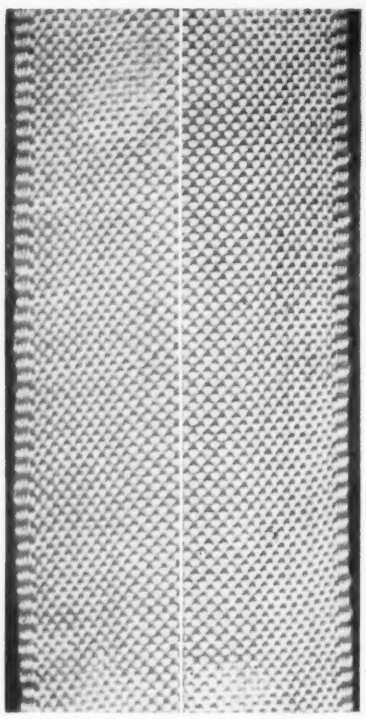


Fig. 1. Gros de Tours edge on rayon cloth.

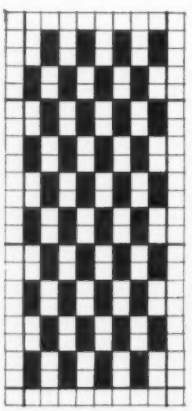


Fig. 2. Gros de Tours binding.

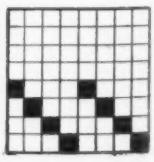


Fig. 3. Four extra shafts.

FULLERGRIPT Brushes keep flat card clothing clean

This is how a set of Fullergript Card Brush Refills looks ready to operate

When brush materials are gripped in Steel—like Fullergript—you have no worries about atmospheric temperatures affecting the brush materials or holding method—no tufts to fall out from splitting blocks or cement loosening.

That's why hundreds of flat cards in mills today use Fullergript, and are constantly replacing old tufted construction as fast as possible. These pre-formed spiral all-metal-back strips are easily attached to your present wood cores by following our simple directions.

Study the photograph above. There are longer bristles at each end of brush strip to clean the ends of the flats where there is no card clothing and keep them free of oil and lint. Our Brush construction packs material into a continuous, dense strip with no gaps to permit insufficient cleaning of the flat clothing.

Cleaner Top Flats Mean Better Carding

Many Carders started with trial sets of Brush Refills, and results meant building up to full installations over a period of excellent performance. These mills are not located in any one section of the country but spread over many States.

We are confident that if you will give them a trial on a few machines, you will want only Fullergript Brushes.

Here's the installation record of one mill only in each ten States. Names on request.

STATE	TRIAL ORDER	Machines now equipped with FULLERGRIT
Maine	6 sets	202 machines
Georgia	6 sets	114 machines
Massachusetts	4 sets	243 machines
South Carolina	2 sets	105 machines
North Carolina	17 sets	37 machines
Alabama	12 sets	144 machines
Rhode Island	6 sets	279 machines
Tennessee	2 sets	126 machines
Connecticut	4 sets	100 machines
Texas	2 sets	50 machines

Over 5000 Cotton Cards are in use today with Fullergript Replaceable Brush Strips. Why not investigate the economy and greater efficiency of these remarkabe brushes?

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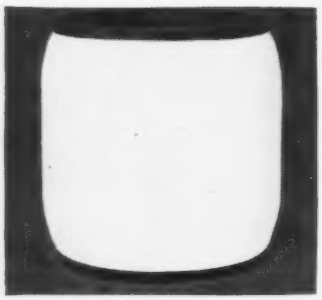
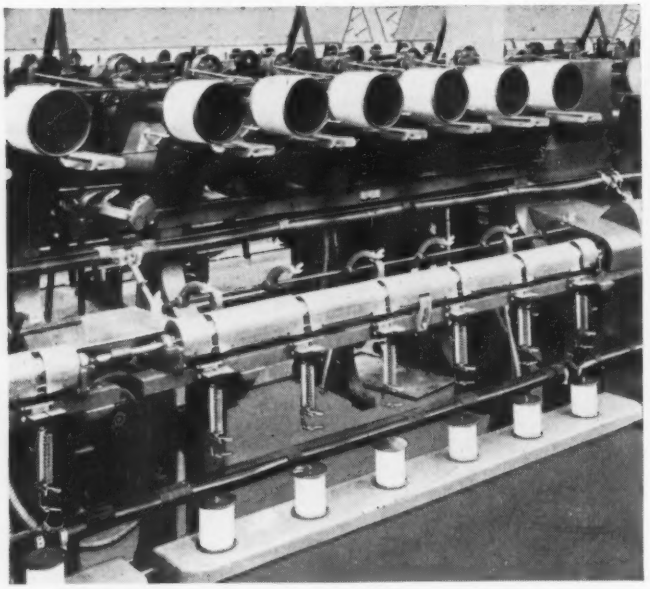
Handling Nylon with Kid Gloves to get Quality Cones

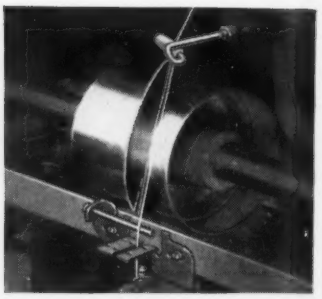
Sizing and coning Nylon by the Universal System results in cones that are ideal for knitting



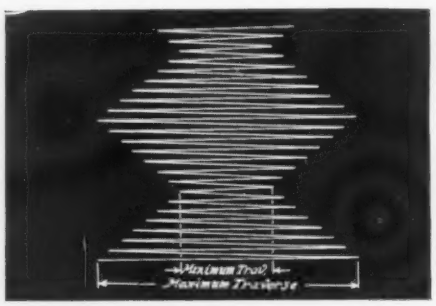
Universal Sizing Tube is designed for uniform, rapid drying and free yarn delivery. Use of four winds during each traverse limits yarn oscillation.



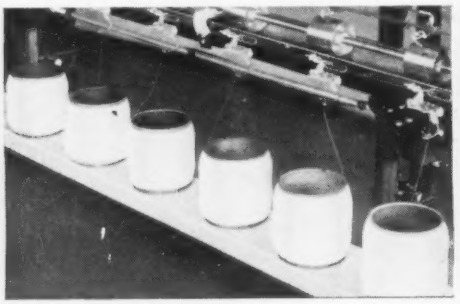
Tension *must* be uniform. The thin yarn layer on the sizing tube means minimum change in yarn takeup speed ... contact points on the No. 250 Sizing Machine are few ... yarn travel is nearly straight from supply to wound tube.



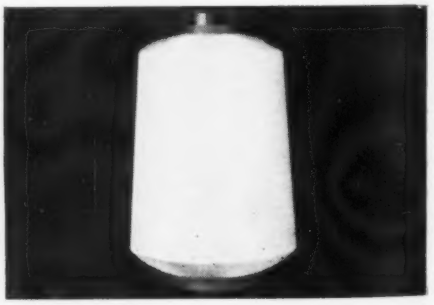
Percentage of size pick-up must be accurately controlled. This is easily accomplished by controlling the roll speed and the amount of yarn contact.



Yarn must be laid carefully on the sizing tube to permit free delivery when supplying yarn to the coning machine. The traverse is alternately lengthened and shortened to produce tapered selvedges.



Redraw is undesirable. The Universal Sizing Tube is used as a direct supply to the Universal No. 50 which also winds with minimum tension and accurately applies the desired amount of emulsion.



Universal Pineapple Cone, produced on the No. 50 Machine by the extremely simple Pineapple Coning Attachment with roller bail, is the ideal knitting cone for Nylon.

Universal Winding Company

Reg. U. S. Pat. Off.

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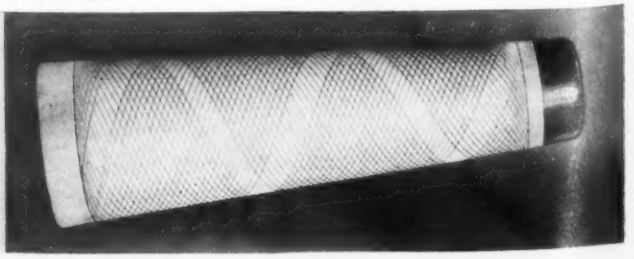
MORE THAN 90% OF ALL SYNTHETIC FILAMENT YARN ON CONES IS PRECISE-WOUND ON THE FLEXIBLE 50



DETERMINING EMPLOYEE APTITUDES

Who is better qualified to determine worker aptitudes, the overseer from experience or the personnel department from aptitude tests?

PETE, I HAVEN'T ANY FAITH IN THESE NEW CONTRAPTIONS OUR PERSONNEL MAN IS USING TO DETERMINE EMPLOYEE APTITUDES! I BELIEVE I CAN SPOT A GOOD DOFFER OR SPINNER QUICKER AND MORE ACCURATELY JUST FROM EXPERIENCE.
I CAN'T AGREE WITH THAT, BILL. EMPLOYEE SELECTION HAS MADE RAPID STRIDES AND MANY OF THESE TESTS ARE BASED ON THOSE USED IN OTHER INDUSTRIES FOR A NUMBER OF YEARS AND PROVEN SOUND
1
WELL, I'VE BEEN ON THE JOB LONG ENOUGH TO TRUST MY JUDGEMENT WHAT APTITUDES A GOOD SPINNER OR DOFFER SHOULD HAVE. I'M BETTING W'LL GET A LOT OF HELP NOW WE'LL HAVE TO FIRE.
NO YOU WON'T, BILL. I'VE BEEN OVER TO SEE THAT NEW BATTERY OF TESTS, AND I'VE SEEN THEM PROCESSING WORKERS. THEY DO GET FACTS YOU AND I CAN SELDOM DETERMINE FROM EXPERIENCE WITH PEOPLE.
2
WELL, I CAN'T SEE HOW YOU CAN HOPE TO PICK PEOPLE THAT WILL BE MORE EFFICIENT ON THE JOB JUST BY MONKEYING AROUND WITH INTELLIGENCE AND APTITUDE TESTS I AM SURE I CAN AVERAGE HIGHER ON PICKING GOOD WORKERS.
BILL, THESE TESTS ARE SPECIALLY DESIGNED FOR PARTICULAR PURPOSES ONCE PROPERLY DESIGNED AND VALIDATED THEY ARE MORE ACCURATE IN GETTING FACTS THAN MERE HUMAN OBSERVATION
3
HERE'S JOE — WHAT'S YOUR IDEA ABOUT THE EFFECTIVENESS OF JOB-APTITUDE TEST'S?
YOU'VE GOT ME THERE, BOYS; I KNOW SO LITTLE ABOUT THEM, I'M AFRAID TO VENTURE AN OPINION. WHY CAN'T YOU READERS GIVE US YOUR OPINION AND EXPERIENCE ON SUCH TESTS?
4

LETTERS TO PETE & BILL are paid for when published, without regard to length. We use letters (not over 200 words) discussing material in this department or any other pertinent matter. Contributions of greater than specified length may be given consideration as articles. Suggestions for the Pete & Bill dialogue are also welcome and if used will be paid for. If these pages interest you, contribute something to them to interest others. Address PETE & BILL, Textile World, 330 West 42nd Street, New York 18, N. Y.

Letters From Readers

Few Workers Want to Buy in Mill Village

"Ownership of Mill Village"
(Pete & Bill, Oct. 1944)

Dear Pete & Bill;

If the people want the homes, it wouldn't be a bad idea to sell them. But where you find one who would buy the house he is in, you would find a dozen that wouldn't have them as a gift, because, as a rule the village homes are very close together, and any one wanting to buy a place to call "home" for life wants one with plenty of room around him.

Also, the mill companies can buy lumber for repairs cheaper than individuals can; also they can get insurance cheaper, and a worker can rent a village house lots cheaper than he can own a home in the village or out. For that reason, companies will have trouble in trying to sell their employees, regardless how loyal, the homes they live in. (PB-190)

Votes Against Meetings in Wartime

"Technical Meetings in Wartime"
(Pete & Bill, Feb., 1944)

Dear Pete & Bill:

Mechanical and technical meetings should be completely left out of our arrangements until the war is ended, and Peace, sweet Peace, once more established and for all time. So let's discourage the thought of these meetings until the opportune time. Such action will save gas, tires, etc., which are so closely rationed in these critical times.

I must agree that Joe is right, and Pete is all wrong, let's obliterate all thought of mechanical meetings until the awful world conflict is over. (PB-140)

Help Worker to Buy His House

"Ownership of Mill Village"
(Pete & Bill, Oct. 1944)

Dear Pete & Bill;

Regardless of who owns the houses, we don't have enough of them at any mill. And still the more home-owners we have the more stable our help will be.

My suggestion is to help the employees to purchase and own their homes—after investigation of their loyalty and stability—and then those homes that are company owned can well be utilized for the help that cannot afford buying their homes. A bad element never chooses to settle down,

MEMORIES OF OLD MAN CARELESSNESS—*By Martha B. Pittenger*

No. 22. Just For Fun

As I go about through the several departments of the mill, I find it easy to pick people of a clownish nature. Seems like there is at least one in each department. To do something funny is their main purpose. I get funny with them . . . and we have great times.

I remember a slubber tender, who was always up to something. One day he detected a hot bearing on the laygear. Naturally, he motioned for the fixer to come over to his machine. He was mighty obliging in pushing the roving cans back for the fixer, as he went back under the frame. I leaned over and whispered in his ear for him to push the cans back; thus obstructing the fixer's way in coming out from under the frame.

All would have been well, but while the fixer was working on the hot bearing . . . the frame caught fire! The fixer dashed to get from under the machine. The cans were in his way. By the time he got out, his clothing had caught fire, and some of the smoke from the burning cotton had entered his lungs.

Sure, the speeder tender and I thought we would just have a little fun with the fixer. We had not figured that there would be a fire.

Of course, carelessness is not a study in logic.

and the good people are not habitual rovers, so in the end the company cannot lose by helping those that want to buy their own abodes.

A village or a settlement in close proximity to the mill is a boon to good attendance, and the added attraction of good pay for a fair day's work tends to reduce the floating element. The labor organizers have a tough problem to organize the help in any such a plant.

Good treatment, adequate pay, and ideal working conditions really reveal themselves in stabilized, efficient and infrequently-moving employees.

Try these things, boys, and you'll find they work! (PB 191)

Hold the Key Men!

"Keeping Key Workers"
(Pete & Bill, July, 1944)

Dear Pete & Bill

Certainly machine-fixers and other key men should stay on the job, instead of getting into the Armed Forces, because we must produce in an effort to win the war. We must produce and aid in every way possible in bringing about an everlasting peace.

If there should be excess of unskilled laborers on the job, laborers that the plant could do without—why they ought to get into the service at the first possible moment. Never, never, let machine-fixers or key men leave the plant. Production must be kept up to the maximum. (PB 198)

Book Reviews

Lighting vs. Seeing

LIGHT, VISION AND SEEING, by Matthew Luckiesh, D. Sc., D. E.; D. Van Nostrand Co., Inc., 250 Fourth Ave., New York; 323 pages; $4.50.

Problems of lighting, employee fatigue caused by eye strain, and increased accidents are all interrelated in a textile mill. Mr. Luckiesh, director of General Electric Lamp Department's Lighting Research Laboratory has coordinated and simplified the complex subject of light, brightness, vision, lighting, and human seeing. Discussions deal primarily with controllable aids to seeing. Textile engineers considering a change in lighting installations may obtain a number of valuable tips from this book which may assist in reducing eye strain of employees.

Oiling and Greasing

LUBRICATION OF INDUSTRIAL AND MARINE MACHINERY; William G. Forbes; John Wiley & Sons, Inc., New York; $3.50.

Every textile mill engineer and master mechanic is aware of the importance of proper lubrication of equipment. Study of this book will give such men a better understanding of the properties of lubricants, their selection, and use. Among subjects covered are lubrication of bearings, steam engines, turbines, air compressors, vacuum pumps, diesels, and gears. A short chapter on lubrication of textile mill machinery is so incomplete that it is disappointing and even misleading. Despite this deficiency, the book contains a large amount of useful information which men responsible for lubrication of productive and auxiliary equipment will welcome.

Other Publications

FEDERAL AGENCIES (A guide of 428 government agencies); Citizens National Committee, Inc., 1429 L. St., N. W., Washington 5; 60 pages, 25¢.

C. E. D. COMMUNITY HANDBOOK ON THE SPECIAL PROBLEMS OF SMALL BUSINESS; Committee for Economic Development, 285 Madison Ave., New York 17; 19 pages.

FIRE HAZARD CLASSIFICATION OF BUILDING MATERIALS (technique of testing fabrics); Underwriters' Laboratories, Inc., 207 E. Ohio St., Chicago 11; 35 pages.

BEARINGS *Saved*...LUBRICATION COSTS *Halved*

SUN LUBRICANT

Stopped Charring and Scoring . . . Protected Calender Bearings

Did you ever have trouble with calender bearing lubrication? With grease charring and bearings failing? Then read how a large Delaware mill solved a similar problem.

Grease dripped out . . . lots of grease was used but very little seemed to reach the bearing surfaces. The grease that did remain on the surface charred and consequently the bearings scored and had to be replaced. Results? Shutdowns were frequent, "dirty floor" accidents occurred too frequently.

Temperature readings and a thorough study of operating conditions were made by a Sun Oil Engineer. With these facts as a guide a special high melting point grease was recommended. It was unusually high in lubricating oil content, effectively "blanketed" the bearings and clung to the bearing surfaces.

Grease costs were cut in half . . . in addition to other worthwhile savings that were effected in maintenance, replacement of parts and finished material.

Many textile mills throughout the country have overcome seemingly "impossible" lubrication problems by calling upon the services of a Sun Engineer. Saving time and money by the correct application of oils and greases is the primary function of a Sun Oil Engineer. The next time you have an outbreak of bearing failures or soiled goods, get in touch with a Sun Oil Engineer for help. Just write . . .

SUN OIL COMPANY · Philadelphia 3, Pa.

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WRITE TODAY for "North, East, South, West"—an informative booklet that will stimulate the thinking of every executive. Dept. PR-11, Railway Express Agency, 230 Park Avenue, New York 17, N. Y., or ask for it at any local office.

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Round Table

FOR EXCHANGE OF IDEAS

The Round Table is designed to supply a meeting place where mill men can discuss problems among themselves. It is open to all readers for discussion of subjects relating to mill management and operation. Bring your problems to the Round Table. Give other mill men the benefit of your experience, and get their ideas in return. Names of contributors to the Round Table will be held confidential if so requested. Sign contributions with your real name and address as evidence of good faith and to permit payment for items published. Address contributions to: Editor Round Table, Textile World, 330 West 42nd St., New York 18, N. Y.

What About Plastics Asks Textile-Mill Man

What about plastics as textile material? Is there anything worth talking about in this field? Some mills have been doing research and development work but do not seem to have much to say. Perhaps it is because they are not sure that everything will prove out.

Much has been said on plastics for screens, seat covers, drapery cloths, etc.; but what about the problems that arise in winding, beaming, and weaving these cloths?

First, let us look at the winding operation. At the present time, we do not believe adequate machinery has developed for winding monofilament plastic yarns. Some mills have converted spinning frames into winders, and these frames are doing a fair job. Experiments have been made using the conventional winders and variations of these winders, but no one seems to want to make a report on this. After all, the shuttle package is a very important thing.

The problems are many, such as:

Dainty

curtain materials for a lady's shower

Tough

upholstery and paulins for army trucks

It doesn't make much difference what type of fabric or the degree of protection needed—*our equipment can coat it.*

If your post-war plans call for plastic coated fabrics or papers, we suggest that you investigate our facilities.

Here is a plant with—

—several million dollars in fabric coating equipment specially designed for the application of vinyl resins, pyroxylin and other plastic compounds.

—experience in plastic coating that wasn't developed over-night—we've been coating fabrics for over fifty years.

— hundreds of intricate formulas covering many types and degrees of fabric protection, developed by our own chemists.

You tell us what is expected of the plastic coated fabric called for in your plans—where and how it will be used—against what must it be protected. We will help you select the fabric construction and formulate the correct plastic coating to meet your requirements.

Today we are turning out millions of yards of plastic coated fabrics and papers that are being subjected to grueling punishment in every part of the world. Samples of these materials are available for your inspection on request.

See us soon, for once our facilities are no longer required in the production of coated fabrics for the armed forces they will be at your service.

Joanna
Coated Fabrics

PLASTIC FABRICS DIVISION

The Western Shade Cloth Company, 22nd & Jefferson Streets, Chicago 16

Plastic Fabrics Division: VINYL RESIN, PYROXYLIN AND OTHER PLASTIC COATINGS • PROOFED FABRICS AND PAPERS • SIMULATED LEATHERS
Industrial Fabrics Division: RUBBER HOLLANDS • VARNISHED SEPARATOR CLOTH • BOOK CLOTHS • AND OTHER SPECIALIZED FABRICS
Window Shade Division: WINDOW SHADE CLOTH, ROLLERS AND ACCESSORIES • CLOTH AND PAPER WINDOW SHADES

EXPORT OFFICE: 40 WORTH ST., NEW YORK 13, NEW YORK • JOANNA TEXTILE MILLS, GOLDVILLE, SOUTH CAROLINA

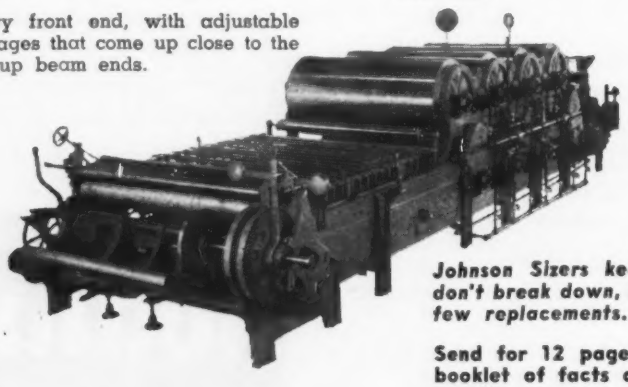
We Don't Put Too Many Irons in the Fire

JOHNSON RAYON WARP SIZERS

are better sizers because our *entire facilities* are devoted to their manufacture *exclusively*.

The result is such features as:

1. . . Gradual acceleration and deceleration.
2. . . Finger tip Control of Stretch.
3. . . Patented Stretch Indicator.
4. . . Improved air-cooled friction disc take-up.
5. . . Heavy front end, with adjustable carriages that come up close to the take-up beam ends.
6. . . All cylinders driven by Cut Gears.
7. . . Super-pressure Quetsch.
8. . . Automatic control of size level and temperature of size liquor.
9. . . Vapor Tension Cylinder Thermometers.



Johnson Sizers keep running, don't break down, and require few replacements.

Send for 12 page illustrated booklet of facts about Johnson Sizers

Charles B. Johnson MACHINE WORKS

PATERSON **P. O. Box 1507** **NEW JERSEY**

What is the correct tension for winding, and what size package is best? Should the filling be aged and for what length of time? Is there any practical method by which this filling can be conditioned?

With the machinery that we now have available for winding plastic yarns, it is almost impossible to build a uniform package. Sloughing is a major item to be considered.

Cost is run up by the accumulation of pieces. The objection to knots is responsible for this. Knots will always break in the shuttle eye. There are two choices—winding filling without knots and making pieces on the winder, or winding full bobbins with knots and allowing loom stops. Knots in the filling will usually break out selvage threads when the filling catches in the shuttle eye.

The bunch is a real headache, too. The problem that arises is that of trying to keep it within a certain width on the quill. Monofilaments have a tendency to uncoil and slip off the bobbin. This causes "wild" filling and jerk-ins. Small grooves at the butt end of the quill help to some extent, but they increase the cost of skinning quills.

Another very serious problem is that of the quill itself. The present quill, as used for cotton, does not stand up under the terrific pressure of plastic yarns. The ends are crushed off, and the barrels are collapsed on the spindle.

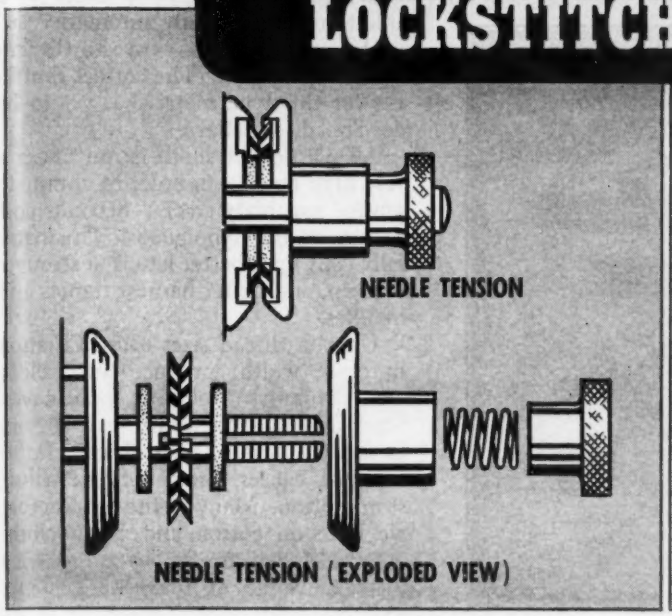
As to beaming, there is still no machine available that we can depend on to give us a good warp for the loom. We still have to deal with tension, stretch, static, and variations in diameter. Uneven diameters cause high and low places on the beam surface. On the loom these ends have less or more tension, and result in streaks in the cloth.

Creeling on the beamer is done by the old method of cutting out the entire creel. This is to eliminate an excessive amount of knots in the warps. As with the filling, knots usually break in the loom. Sometimes they break in the drop wire, sometimes in the harness eye, and almost always in the reed.

The loom beam too, like the quill, must be made stronger in order to stand up under terrific pressure. Loom beams, as used on cotton, will not do a good job. The barrels crush and the heads break off.

What is the weaving angle? Many mill men have thought long on this question. On the loom, monofilament plastics act very much like filament

HOW TO GET MORE WORK OUT OF YOUR "W & G" LOCKSTITCH MACHINES



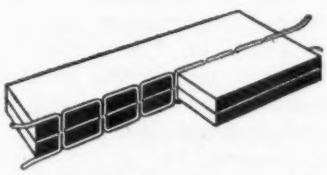
THE "TENSIONS"

The Tension Unit in the "W & G" Lockstitch Machine is not affected in any way by irregularities in the thickness of thread. This is due to the fact that no pressure is placed upon the thread itself since the thread is wound on a drum and it is against this drum that friction is applied. Thus it is possible to handle a wide variety of threads without any change occurring in actual tension.

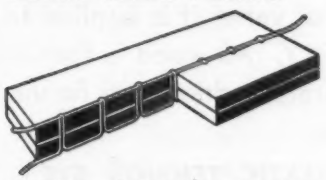
BOBBIN THREAD TENSION: This tension is regulated by means of a small screw on the tension spring. To increase tension, the screw is turned clockwise and to decrease tension the screw is turned counter-clockwise.

NEEDLE THREAD TENSION: This tension should be adjusted with Foot in normal sewing position. To increase tension, the Tension Nut on the Tension Unit should be turned clockwise and to decrease tension, the nut should be turned counter-clockwise.

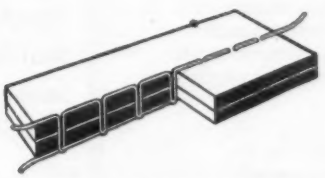
CHECK THESE POINTS



Correct stitch formation. This is readily attained by adjusting the tension both for needle and bobbin threads.



Condition of stitch formation when tension on needle thread is too tight or bobbin thread excessively loose.

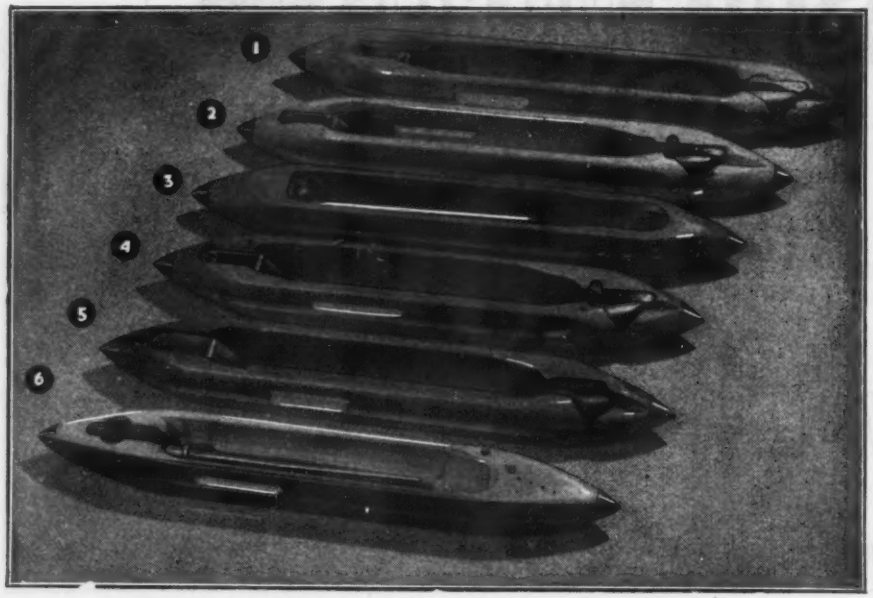


Condition of stitch formation when tension on needle thread is too loose and bobbin thread excessively tight.

To attain highest efficiency with your Machines get the New W & G Lockstitch Manual. It's free to users of W & G Lockstitch Machines. Send for a copy on your company letterhead.

WILLCOX & GIBBS SEWING MACHINE CO.
214 West 39th Street, New York 18, N. Y.

SHUTTLES
LOWELL

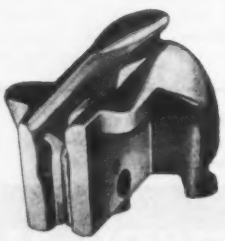


47 Years of Manufacturing Experience

1. Shuttle for Automatic Wool Loom.
2. Shuttle for Automatic Worsted Loom.
3. Shuttle for Plain Worsted Loom.
4. Shuttle for Automatic Cotton Loom* (equipped with brass threader).
5. Shuttle for Automatic Cotton Loom (equipped with cast iron threader).
6. Shuttle for Silk or Rayon Loom (equipped with Paterson Tension and Fibre Covered on one side).

Forty-seven years of manufacturing experience contribute to the superior quality of Lowell Shuttles. They are made of dogwood or persimmon, as specified, and include automatic and non-automatic types for cotton mills (including duck), woolen mills, worsted mills, silk mills, rayon mills, paper mills, and carpet mills; also fibre covered shuttles for rayon and silk. This covering not only prevents roughing up of yarns; it is applied to the shuttle to STAY. All wood is thoroughly seasoned, carefully dried and finished to specifications.

AUTOMATIC TENSION EYE



Can be furnished in place of regular tensions for more precise control in weaving rayons, fine worsteds and fine cottons. Contains two hardened steel plates pushed together by coiled springs. Adjustment effected by screws.

LOWELL SHUTTLE CO.

Established in 1896 — *Incorporated in 1914*

15 TANNER STREET • LOWELL, MASS., U. S. A.

rayon. Do we need a completely new loom for this kind of weaving? We cannot maintain loom speeds when weaving plastics that we can when weaving rayon, and no one seems to be able to run looms fully automatic.

We are having to learn shuttle tension all over again. The correct shuttle eye for this type material is yet to be developed, I believe.

All plastic-yarn cloth is run under a very high tension in order to eliminate selvage and body cracks. Seconds cost money on this type goods. This naturally calls for a better let off, a stronger take up, and better harness frames and heddles.

Uneven thread sizes cause variation in cloth width, produce wavy cloth and, naturally, give a very poor cover. Slack and tight picks are very obvious as are mispicks. The stiffness of this material causes failure of the filling stop motion. Many of the defects that we have on cotton and rayon cloths are multiplied ten times in weaving plastics. Some of these defects are: jerk-ins, wild filling, mispicks, slack and tight picks, looped and kinky filling. Humidification in weaving is useless since most plastic yarns absorb no moisture at all. Slippage of filling after the beat up is hard to control, and moisture present on the surface of the warp will increase this slippage.

There is much to be said and more to be done on weaving plastic yarns. Perhaps this will serve, if for no other purpose, as a starting point for more discussions on this subject. *(R-89)*

Cut in Box Plate to Stop Broken Picks

This is an answer to R-47 who wanted information on overcoming broken picks. The method that I am about to explain will no doubt overcome broken picks—as well as bruised and squeezed filling, which was not mentioned.

It stands to reason that when the shuttle traverses directly over the filling, it does not always make a broken pick. At times it will only bruise or squeeze the filling. If the inquirer would examine a piece of cloth which comes off one of the looms that is giving him his trouble, he probably will notice bruised and squeezed filling throughout the length of the piece.

If he will follow directions as shown in illustration, his problem of overcoming broken picks should be solved.

Remove the box plate from the loom and send it to the shop to have a groove cut $\frac{1}{16}$ in. in depth. The

General Chemical "B&A" Reagent Acids and Ammonia

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Another is cementing both sides of Unisorb pads in place so looms can be anchored to isolate and dampen vibration.

There's no drilling or boring or damaging floors—when you anchor looms with Unisorb felt cushion mountings. It's simple, quick, and inexpensive. Two of four simple steps are shown above.

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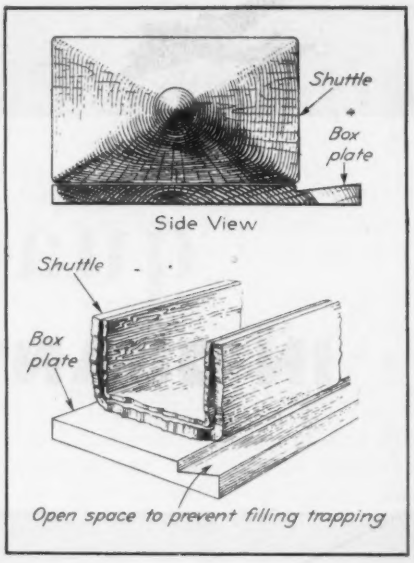
THE FELTERS COMPANY INC.

210-W SOUTH STREET, BOSTON, MASSACHUSETTS

groove should extend from ⅛ in. under the shuttle to the outside edge of the plate. By cutting this groove in the box plate, the filling will not creep under shuttle as the shuttle traverses over.



The method previously stated was used in a mill with over one thousand looms. The writer helped to revamp the boxes and it was found satisfactory. *(R-87)*

Objects to Terminology of Woolen Fabric Defects

I have been a subscriber to TEXTILE WORLD for several years and always read with interest all articles, and note their educational values.

I took particular interest in the illustrations of the imperfections in the May issue, page 93, covering woolen fabrics.

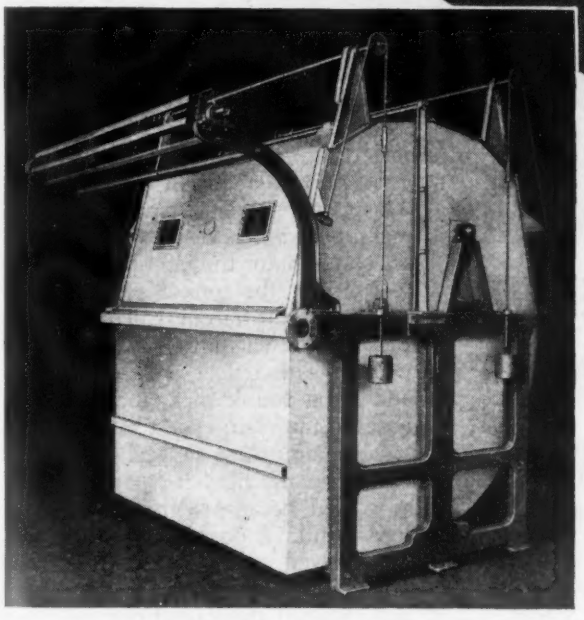
The illustrations are fine examples encountered in the weaving of wool; but some of the definitions are, to my mind and experience, wrong and out of order. I have been in the textile business as a sparehand, weaver, loom-fixer, inspector, and cloth examiner for 23 years.

We have been weaving woolen fabrics at our mill for about one year on a small number of looms. We run into the defects mentioned and by running down the causes of these imperfections, I find that the causes listed under your illustrations do not tally with my findings.

In the illustrations titled "Light Places," and "Mispicks," the defects appear the same.

In the illustration "Light Places,"

THE HUNTER MODEL "NK"



TOTALLY ENCLOSED, STAINLESS STEEL PIECE DYE KETTLE FOR MODERN DYEING AND BLEACHING

Illustrated here is the newest Hunter addition to modern dyeing and bleaching requirements. It offers the users these distinct advantages among others:—

(a) Vibrationless construction: All driving and driven members supported in newly designed separate frames.

(b) Vari-speed drive for main reel for increased flexibility.

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(e) Proved performance on fabrics ranging from mohair plushes, woolens, worsteds, unions, blankets, to spun rayon suitings.

If you contemplate replacing or expanding your present dyehouse units, it will pay you to ask Hunter for details. Simply write or call

JAMES HUNTER MACHINE CO. Hunter NORTH ADAMS MASS.

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Here's Help

Write for Catalog 4308

IN WASHROOM PLANNING . . . NOW'S A GOOD TIME TO MODERNIZE

• Employees place adequate and sanitary washing facilities high up on their list of things desired.

The planning of new washrooms—the rearranging or additions to present facilities can be easily accomplished with Bradley floor plan suggestions and the use of Bradley Group Washfountains and Multi-Stall Showers.

Bradley Washfountains, for example, save space, cut water consumption, reduce piping connections. One Bradley takes the place of 8 to 10 "single-person" wash basins, providing ideal facilities for 8 to 10 persons simultaneously. The clean running water from the central sprayhead means complete sanitation with all water carried away by the self-draining bowl. Fewer fixtures, fewer piping connections and the elimination of dozens of faucets insure the very minimum of maintenance.

Foot control means that the hands need never touch anything but the clean running water. The low-set bowl makes thorough washing to the waist possible.

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BRADLEY *washfountains*

the defect immediately below the break in the pattern looks like shifted ends, or a place where the fabric has been bruised or rubbed. The break in the pattern is due to the fact that the weaver did not have the correct pick when starting the loom. This is also the cause of the breaks in the pattern in the illustration titled "Mispick."

At the top of this illustration you will note a break in the pattern; further down near the bottom of the picture you will see still another break. However, starting at the top and continuing downward, by following the pattern, you will note that the black and white ends at the top and bottom of the illustration are again in their proper sequence.

This is caused by the pattern chain being off one pick at the first break and off one pick at the second break; which, in turn, caused it to continue the pattern as it was designed.

These breaks are all caused by the weaver who, upon taking out broken picks, does not have the pattern chain set correctly for the next pick in order to continue the correct design.

In the illustration titled "Double Picks," the definition is definitely wrong. This defect is a broken pick and not a double pick, and can easily be fixed up by an expert mender.

Naturally, these defects show more clearly on the heavier-type yarns such as woolen, because of the low pick and reed count. A double pick is 2-ply of yarn woven across the width of the fabric. It appears when the shafts have not changed their positions, and prevent the proper interlacing of the warp ends with the individual picks.

The illustration titled "Broken Warp Ends" is also definitely wrong. This defect is caused by the weaver when he does not enter the individual ends in the proper heddles. This imperfection I, personally, call a "Wrong Draft." The ends are not entered in the heddles in the proper rotation, thus they cause a break in the serge (running from lower left to upper right). In this illustration, there are two ends or heddles that are reversed from the correct entering which cause a break in the serge. This defect can be reproduced on a serge or herringbone weave by simply reversing any two heddles on the shafts. If there was a broken end in this illustration it would show up; but not by having the design start from left to right, continue to the middle of the sample illustrated, then drop one pick, and continue on with the design to the end of the sample. *(R-90)*

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FALLER BARS—PLAIN or PINNED
HACKLES FOR MACHINE or HAND
GILLS PINNED
TENTER PLATES PINNED
WET and DRY COMBS
FOR THE BRUSH TRADE
LAGS—GILLS—TENTER PLATES
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IRON RIVETS
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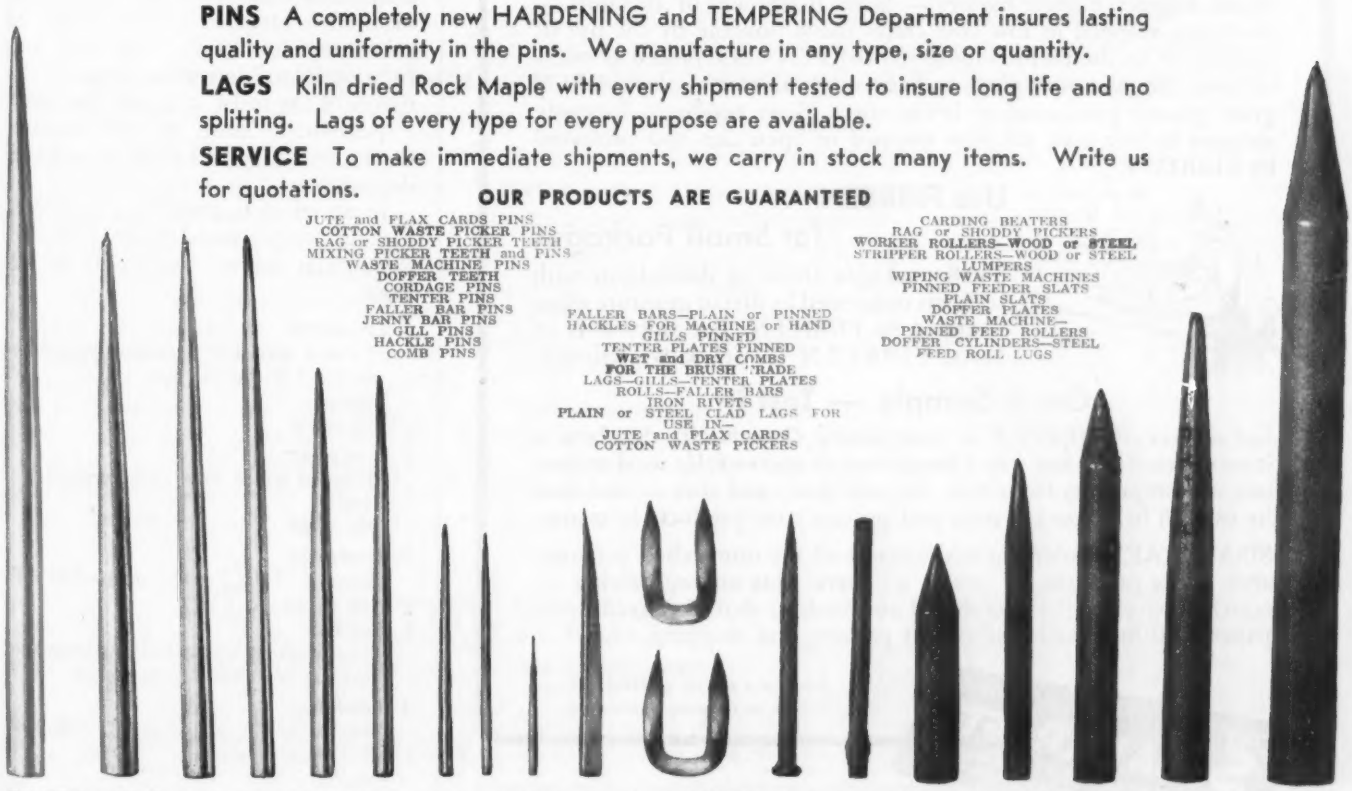
CARDING BEATERS
RAG or SHODDY PICKERS
WORKER ROLLERS—WOOD or STEEL
STRIPPER ROLLERS—WOOD or STEEL
LUMPERS
WIPING WASTE MACHINES
PINNED FEEDER SLATS
PLAIN SLATS
DOFFER PLATES
WASTE MACHINE—
PINNED FEED ROLLERS
DOFFER CYLINDERS—STEEL
FEED ROLL LUGS



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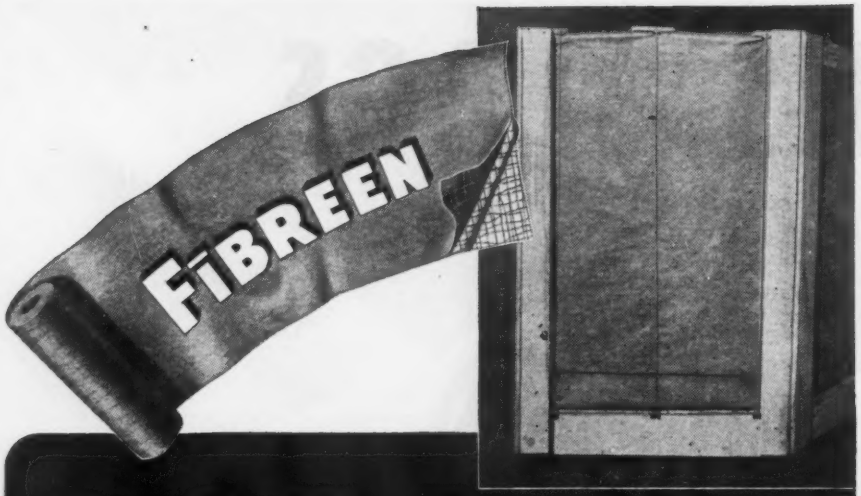

May Enable You to Use A Crate Instead of a Case!

. . . or to ship in open cars

Decreased shipping cost, with definite assurance of protection from rain and dirt, has been achieved by many manufacturers who have used FIBREEN to line crates that replaced boxes. In some instances, wrapping with FIBREEN enabled the shipper to eliminate the crate.

Diesel engines, electric motors — heavy machinery of all kinds — are being shipped in low cost crates made possible by the use of FIBREEN. In the textile industry, FIBREEN has replaced as many as three different wrappings and the single thickness of FIBREEN gives greater protection at lower cost. Many products, formerly shipped in box cars, are now shipped in open cars and protected by FIBREEN.

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Small packages arrive at destination with contents unharmed by dirt or moisture when wrapped in FIBREEN. For shipments of parts, FIBREEN is especially desirable.

Get A Sample — Test It!

Get a piece of FIBREEN in your hands. *Crumple* it! See how it it resists tearing! See why Fibreen was so successfully used to protect war shipments from rain, ice, salt spray and dirt — and how its use can help *you* cut costs and protect your products in transit.

SISALKRAFT leadership is the result of the unmatched performance of its products for nearly 25 years, plus an engineering research service that has developed outstanding sisal fibre-reenforced papers and improved methods of packing and shipping.

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Questions AND Answers

Spotty-Dyed Cotton Gabardine

Technical Editor:

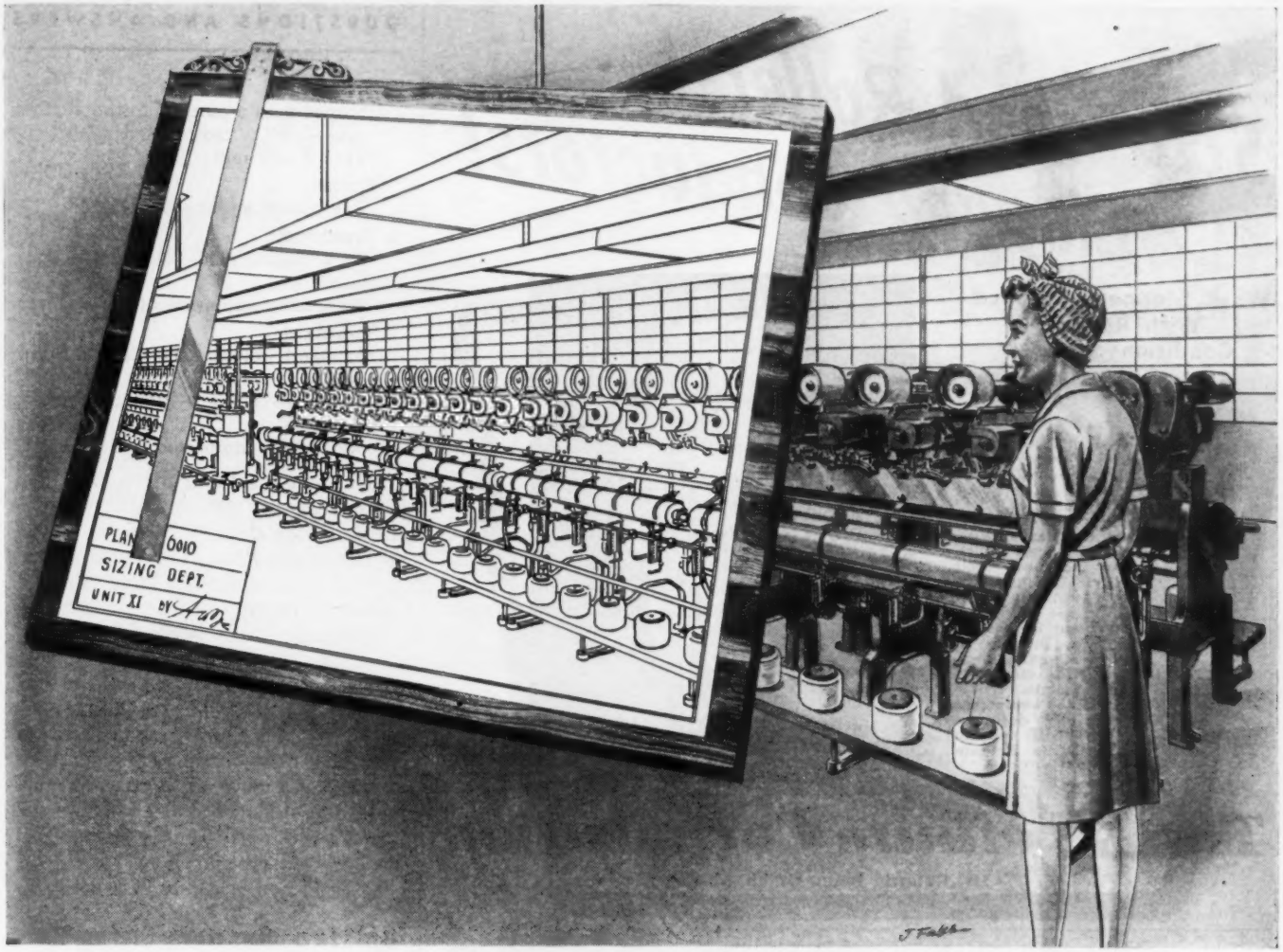
We are submitting a sample of gabardine which we have dyed from white. After dyeing in jigs the material turned up spotted and blotchy as you will notice in the sample. We have come to the conclusion that this material was treated with some sort of a permanent finish and we tried treating it with a caustic soda, without much change in the appearance. We would appreciate it very much if you will let us know if there is any special way of preparing or removing this finish so as to acquire an even dyeing.

Your prompt reply in this matter will be greatly appreciated by the writer as we have a considerable amount of this material to be dyed. (9011)

The inquirer is quite right in his conclusion that some sort of foreign material is attached to the sample of gabardine submitted. We have not been able to determine exactly the nature of the resist, as it may be either a permanent finish as the inquirer thinks, or it may be a form of cellulose degradation.

In an effort to produce a level dyeing, the sample was first stripped, and then given various treatments as follows:

1. *Treatment:*
   Treated with 1.0% sodium hypochlorite 100° F. for 30 min.
   Results:
   No effect
2. *Treatment:*
   Stripped goods were re-mercerized
   Results:
   No effect
3. *Treatment:*
   Scoured 1.0% oxalic acid—130° F. for 15 min.
   Results:
   Improvement was noted, but complete leveling was not accomplished
4. *Treatment:*
   Soaped 0.5% soap—2.0% soda ash 212° F.—5 min.
   Results:
   Improvement noted but leveling not complete (Continued on page 178)



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As early users of humidity control, the textile industry pioneered in the use of industrial air conditioning.

Often, however, the combination of high humidity and high temperature has an undesirable effect upon workers' health, efficiency and alertness.

Temperature, humidity, air cleanliness, circulation and ventilation are all controlled for best effect upon product and worker alike, with Modern Air Conditioning. That's why so many textile mill executives place it high on the list of essentials, in their postwar plans.

Modern Air Conditioning means Westinghouse—and its years of pioneering research and engineering experience.

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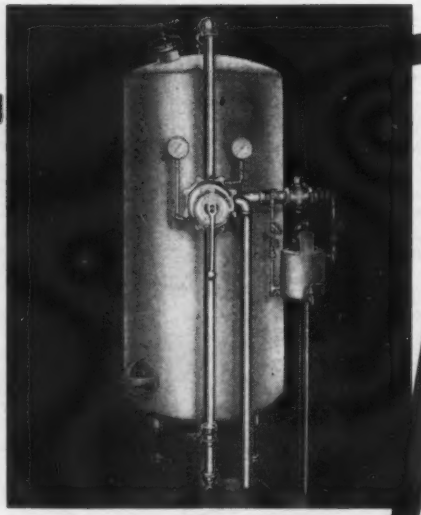
Work Stoppers Stopped With Refinite Conditioned Water



Small Refinite Rapid Pressure Filter

Turbidity (suspended matter in water), often results in mud stains on cloth, scratched rollers, clogged conductors, etc. Turbid water also carries with it the chemicals which cause hardness and acidity. The troubles which turbidity can cause are numerous . . . and expensive! It is far cheaper to remove the cause than to pay for the damages. Refinite Water Conditioning equipment is specially designed to meet YOUR specific needs. Write Refinite today!

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5. *Treatment:*
Soaped with a pine-oil, castor-oil emulsion—1.0%; caustic soda 3.0% at 212° F.—5 min.
Results:
Reasonable leveling of dye-stuff

6. *Treatment:*
3.0% caustic soda—212° F.—5 min.
Results:
Noticeable improvement in leveling

7. *Treatment:*
Stoddard solvent and soap (1 part Stoddard solvent—2 parts soap) 3.0% solution—212° F.—5 min.
Results:
Noticeable improvement in leveling

In order to obtain the results mentioned above, patches of goods so treated were dyed in a 0.5% solution of Direct Sky Blue. This color is sensitive to oxycellulose and shows up other causes of resists readily.

Naturally, in a beaker, results can be obtained much more quickly than if the operation is carried out on a jig, so it is possible that even though the inquirer used caustic soda with no effect, it may be that a longer treatment or a higher concentration along with one of the solvent emulsions will remove the resist so that the goods can be evenly dyed.

Knitted Border Sizing

Technical Editor:

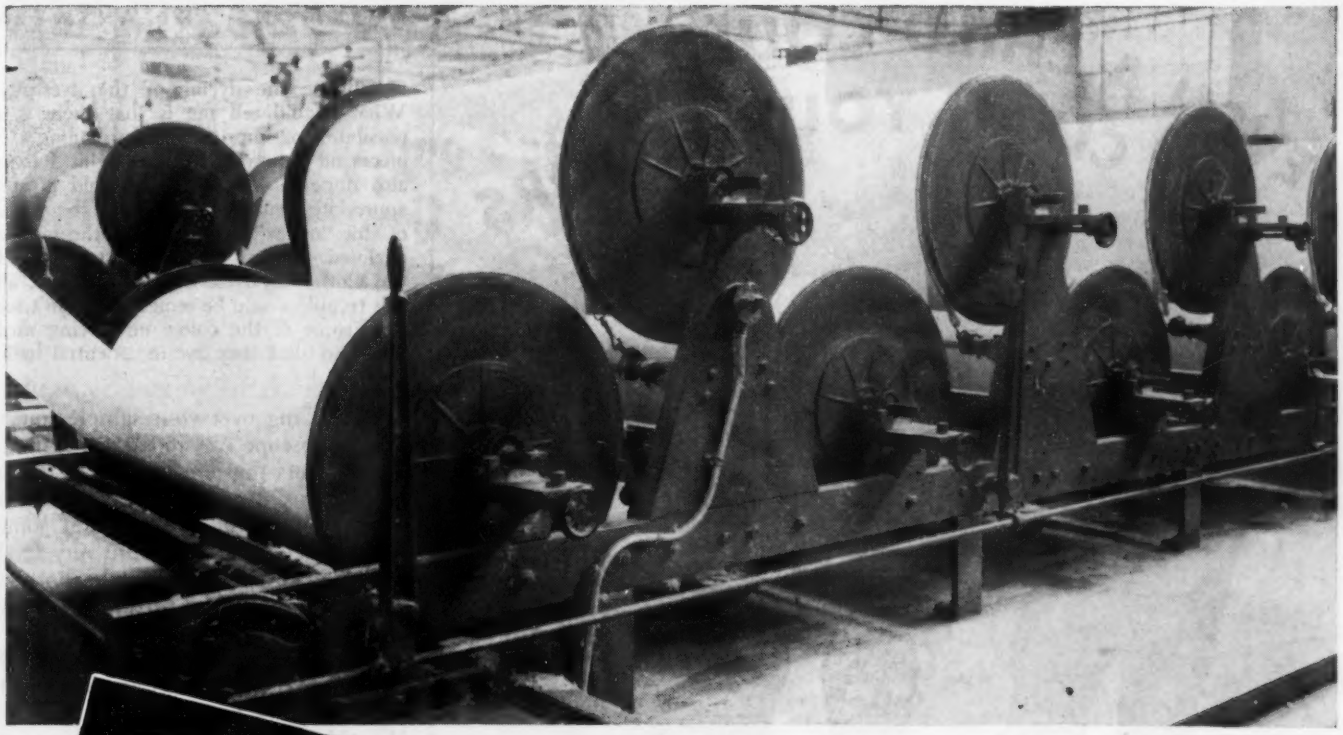
We are enclosing a sample piece of border which we sew on sleeveless sweaters at the neck and arm holes. Difficulty is encountered in steaming out the curl so that it can be handled with some degree of speed. We will appreciate any suggestion you can make as to a method of over-coming this difficulty. (9003)

Pieces of border, such as the sample submitted, can be more speedily handled by having the fabric sized. Circular-knit cloth is often used for border by slitting and cutting whatever widths are required. The fabric may be sized on the Tube-Tex range or on other equipment before the slitting and cutting operation.

Unevenly Dyed Piece Goods

Technical Editor:

We are encountering trouble with woolen piece dyes having a "mixey" appearance when dyed. This cloth is 100% wool. We do not carbonize the pieces, but some of the wool in the blend may be carbonized. Therefore, I have been dyeing it with neutral dyeing wool colors which are also unions in order to cover any specks which might be in the cloth. I do not know what blend of wool was used in the piece of cloth herewith enclosed, but I have talked with the head designer of a large woolen company and he does



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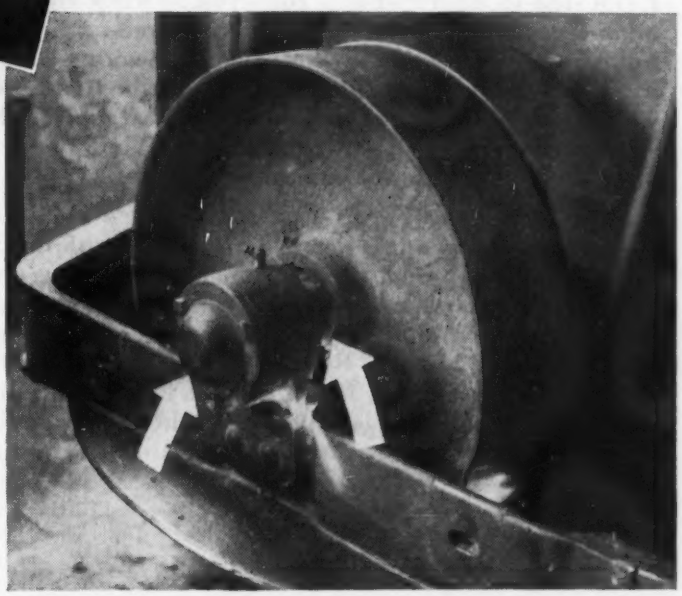
Above, a one-piece steel slasher creel with ball bearings on all journals. Adjustable brake releases automatically when slasher starts. A sturdier creel that's easier to align, produces more uniform work and saves time and power.

Below, a ball bearing loose pulley and outrigger that can be applied to any spinning or twister frames.



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EVER stop to figure what it costs you to keep your floors free from oil and grease? The number of man-hours . . . the investment in and upkeep on machines . . . the price of cleaning-compounds . . . the wear and tear on the floors . . . the production-time lost. . . . And when you're all through, what have you got? A floor that's only *surface*-clean and that's dirty and slippery and dangerous again soon after the machines start humming.

But SPEEDI-DRI is so easy to use that a child could keep your floors clean. It can be applied and swept up without fancy equipment and without stopping a single machine for a second. Immediately upon application, it provides one of the surest non-skid surfaces ever invented, preventing costly slipping accidents. Even when oil-soaked, it will not readily burn. Best of all, it really *cleans* floors, removing all oil and grease and, if left on the floor as a non-skid carpet, it *prevents* floors from becoming oil-soaked. You ought to get a FREE SAMPLE and try it. It will cost you nothing. Write today.

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SPEEDI-DRI
OIL AND GREASE ABSORBENT

not blame the dyeing or the dyestuffs. What he did tell me is that there is a possibility of improving it by boiling the pieces off first with ammonia, this I have also done in the past. I would greatly appreciate your opinion as to the cause of this "mixey" appearance in the sample enclosed. It has been suggested that if the cloth was dyed with acid colors, all this trouble would be remedied. I can't see it as some of the colors now being used are "acid" but they dye in a neutral bath. (8998)

In looking over your sample under the microscope we find quite a number of fibers that are not dyed. If the sample was dyed with neutral union colors, you would have to add some suitable acid colors that are very level dyeing in order to fill up the bottom so as not to have a "mixey" or washy appearance.

Boiling out with ammonia should be done. It is also well to know what blend of stock was used in the fabric. We think the dyer is using union-fast colors or similar colors, and if so, he will have to fill out with extra acid dyes. This will give the sample a more even appearance. It is difficult to provide more detailed recommendations, not knowing what colors were used.

Odor in Knit Fabric

Technical Editor:

We are submitting for your advice an end of fabric—knitted, wool face, fleece cotton back which, due to improper scouring has left an odor in the cloth. Since it has been dried the odor shows no signs of disappearing after continued rescouring. Any suggestions you can make will be greatly appreciated. (9009)

It is our belief that the objectionable odor remaining in the knitted fabric can be eliminated by adding a perfume to the final bath before removing from the dye beck.

Dyehouse Boiler Capacity

Technical Editor:

We would like to know what size boiler capacity is necessary to dye approximately 10,000 lb. of cotton yarn a day on 8 hr. production. We would prefer to have this dyed on perforated tubes in batches of from 50 to 1,000 lb. (9008)

In order to dye 10,000 lb. of yarn in 8 hr. a boiler of 6,500 to 7,500 lb. per hr. of steam capacity is required. If instead of steam the distribution of heat is done by means of high-temperature hot water, a boiler with 20%

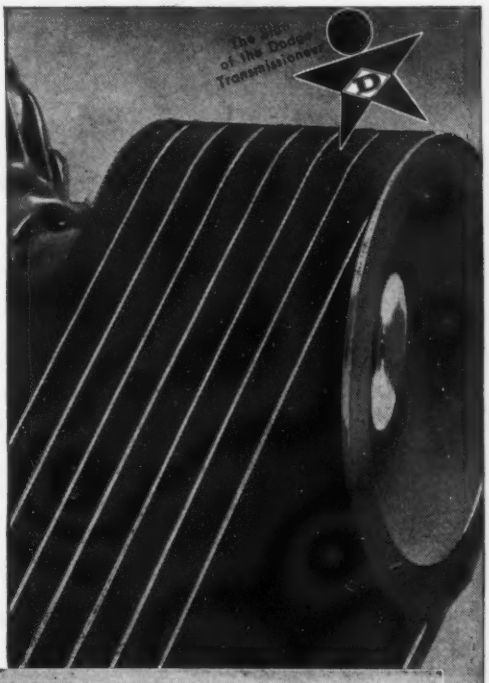
TRANSMISSIONEERED MEANS ADVANCE DESIGN IN POWER DRIVES

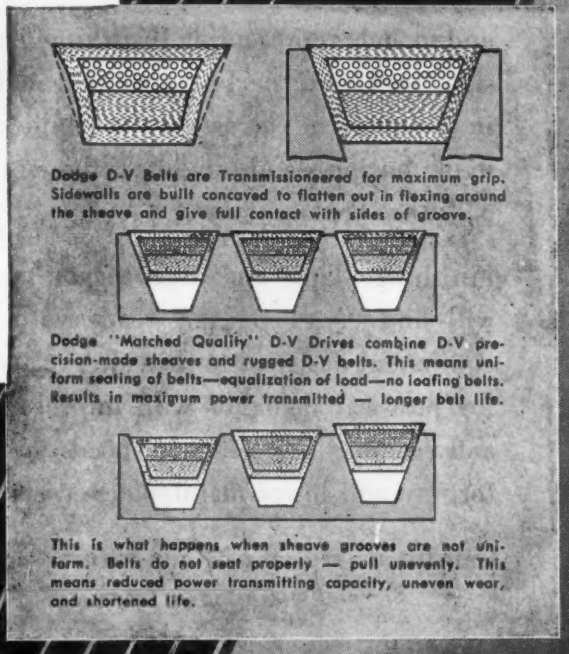
Transmissioneering Delivers More Pulling Power with D-V Drives...

Grip and pulling power are Transmissioneered into Dodge D-V Drives. They combine the V-Belt's transmission capacity, resilience, and ability to absorb sudden shocks with the high efficiency of transmissioneered, precision-built sheaves.

A perfectly matched team—precision-grooved D-V Sheaves with full contact D-V Belts—give "Matched Quality" performance, negligible slippage loss and an even division of the load among fully seated, tightly gripping individual belts. D-V Drives are easy to install and maintain. Their smooth pick-up of the load and relatively low tension make them easy on the driving motor.

The Dodge Transmissioneer—your local Dodge Distributor—can furnish, usually out of stock, D-V Drives complete with belts and sheaves. He will gladly work with you to select "The Right Drive for Every Job".




Dodge D-V Belts are Transmissioneered for maximum grip. Sidewalls are built concaved to flatten out in flexing around the sheave and give full contact with sides of groove.
Dodge "Matched Quality" D-V Drives combine D-V precision-made sheaves and rugged D-V belts. This means uniform seating of belts—equalization of load—no loafing belts. Results in maximum power transmitted — longer belt life.
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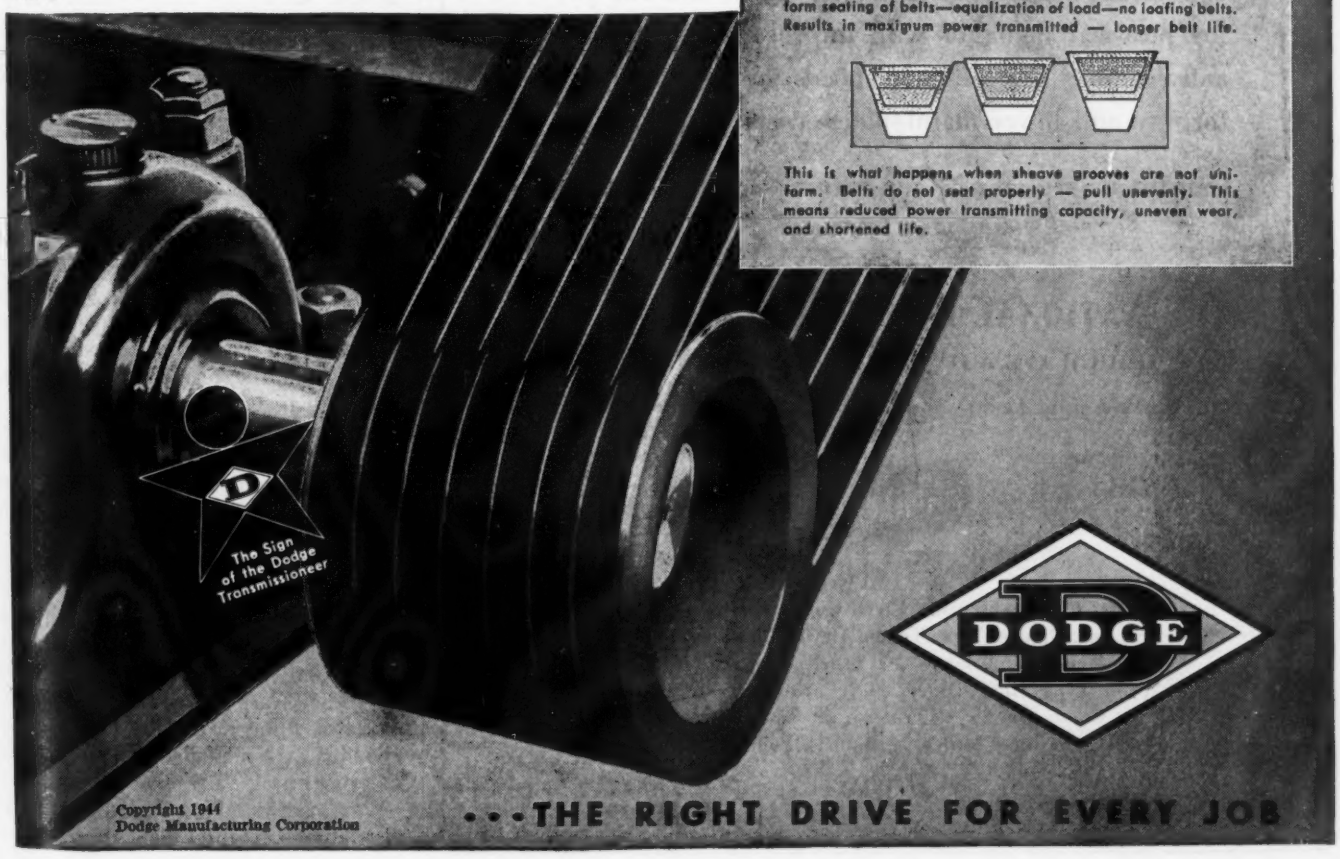
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. . . THE RIGHT DRIVE FOR EVERY JOB

Check-ups on Present Drying Equipment Point to "NATIONAL"

Examination of your present drying equipment and its production will undoubtedly show the need of considerable improvement, before getting into competition for post-war business.

The right solution will be found in confining your purchases of new machinery and equipment to the makes and models representing the *ultimate* in improved design, operation, performance and maintenance. Only in this way can you assure the soundest basis for profitable business and the longest possible postponement of future replacements.

Finishing plants and departments taking this course will find "NATIONAL" ready with machinery and equipment designed to provide every means for meeting post-war demands with unprecedented efficiency and economy . . . higher speeds, better quality uniformity and lower maintenance costs.

Consult us regarding your future requirements *now.*

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WEST LEHIGH AVE. & HANCOCK ST., PHILADELPHIA 33, PA.

New England Agent—C. H. INGALLS, Providence, R. I.

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PRODUCTS: Automatic Piece Goods Dryers • Straight Run and Return Type Tenter Drying Systems • Yarn Dryers and Conditioners • Truck Type Skein Dryers Apron Type Stock Dryers and Carbonizing Equipment Print Goods Dryers • Truck, Tray and Conveyor Type Test Dryers for Textiles, Chemicals, Food Products, etc.

smaller capacity is required. It is assumed that the required power is not taken from this boiler, but is provided from some other source. Articles on high-temperature hot-water heating appeared in the September, and December, 1943, issues of TEXTILE WORLD.

Herringbone Effect on Rayon Satin

Technical Editor:

I am sending, under separate cover, a sample piece of rayon satin. This satin was drawn-in on five harnesses, and woven on a Crompton & Knowles automatic bobbin-changing loom which was running at 156 picks per min. The looms are all equipped with the latest let-offs.

You will notice, on examining the piece, that it has a herringbone effect running warp-wise.

I would appreciate it very much if you would let me have your opinion as to what could be done to eliminate the herringbone effect, as well as your opinion as to what could cause this condition. (9012)

The equipment you have has no relation to the herringbone effect on this cloth, as it is neither a let-off barre nor a harness repeat mark. This may seem odd; but the effect is really a contrast in light or rather an optical deception. It is positively no defect.

The cloth you weave, taking the sample submitted under careful viewing and examination, is commercially perfect. It contains no weaving or yarn defects with the exception of a narrow selvage on one side of about two dents. This is, of course, a weaver's neglect in keeping in the two outer selvage dents, or perhaps the selvage bobbin contains a few ends less than the bobbin on the opposite side. It could also be caused by a few sharp dent wires along the outer edge, the weaver allowing these ends to hang out rather than continually shutting down the loom for drawing-in, and the resulting loss of production which will give the weaver less picks on the pay check. If the selvages are nearly equal in appearance and amount of yarn and dents, this is no serious problem excepting from the production angle.

The actual reason for the herringbone effect is the 5-shaft satin weave pattern and the manner in which the ends bind. For instance, on a 5-shaft straight entry, the pattern lift is 1-3-5-2-4. Each warp end on the face side is over four filling strands and under one, giving the desired sheen. When binding the filling yarn, one warp end is separating two filling strands from the next warp end which lifts, then crowds

Inside information on POWELL VALVES

From the outside, this small size 200-pound "White Star" bronze Globe Valve looks very much like the same type of valve in other makes. But inside, where it really counts, Powell design and engineering show the results of nearly a century of "know how" in Valve making.

Among its many features are the regrindable and renewable semi-cone plug type seat and disc, especially designed for severe service conditions. The disc is made of "Powellium," a special nickel-bronze alloy developed by Powell Engineering. The seat ring is furnished in a specially heat treated Stainless Steel. Both are highly resistant to corrosion and erosion.

Of interest, particularly to maintenance men, is the fact that this valve can be *repacked under pressure* when wide open. This feature is provided by the machined face on the base of the bonnet which, engaging with the cut-off collar machined on the top of the disc lock nut, positively seals off the pressure from entering the bonnet. An exceptionally wide and deep stuffing box affords generous packing space. The protruding gland, held in place by a large stuffing box nut, also affords an additional guide for the stem.

The ground joint union body-bonnet connection, held fast by a heavy hexagonal ring nut, permits the bonnet to be easily and quickly removed from and re-attached to the body any number of times without impairing the tightness of the connection.

Ample space between the end of the pipe thread and the diaphragm prevents the pipe striking the diaphragm and distorting the seat when screwing the pipe into the body.

The malleable iron *non-heating* handwheel is designed to fit the hand and afford ease in operating the valve.

The complete POWELL Line includes Globe, Angle, Gate, Check, Relief, Y, Non-Return and other types of valves in bronze, iron, steel, pure metals and special alloys to meet the demands of all branches of industry for dependable flow control equipment.

The Wm. Powell Co.

Dependable Valves Since 1846

Cincinnati 22, Ohio

This valve, especially adapted for steam, oil, water or gas lines, is giving long-life, dependable service in textile mills throughout the United States.

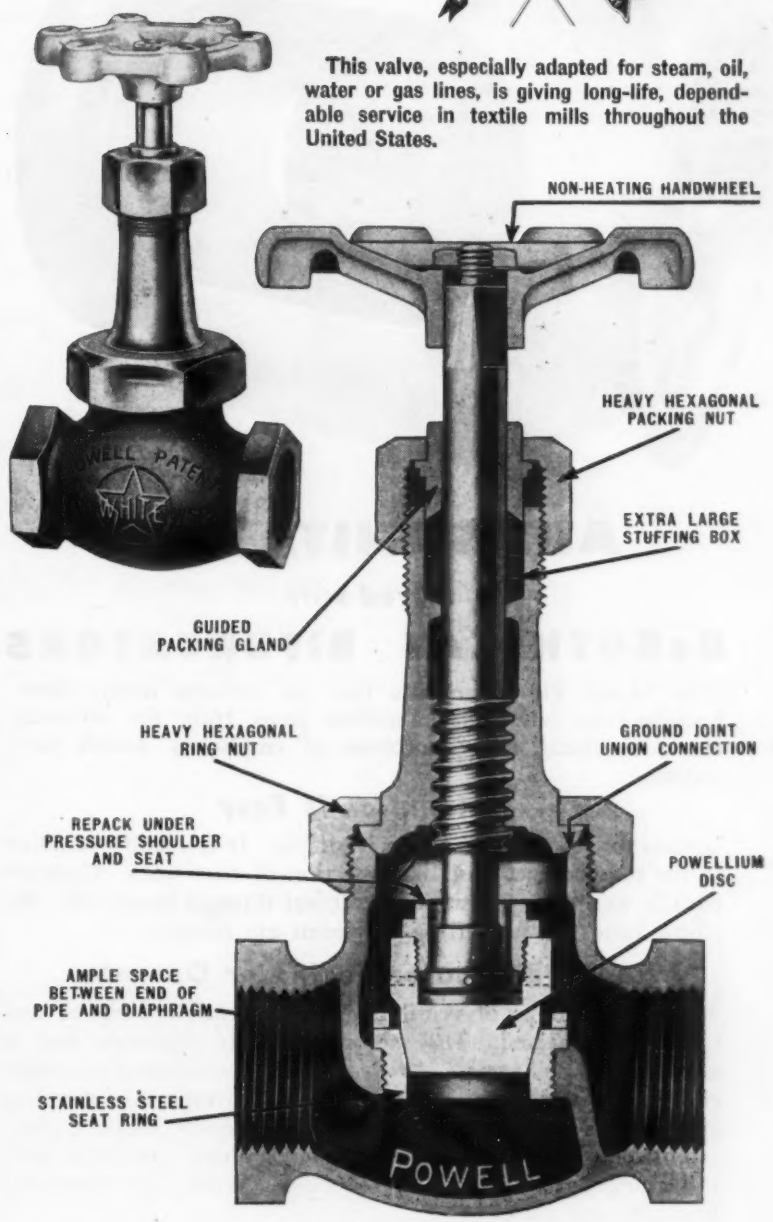
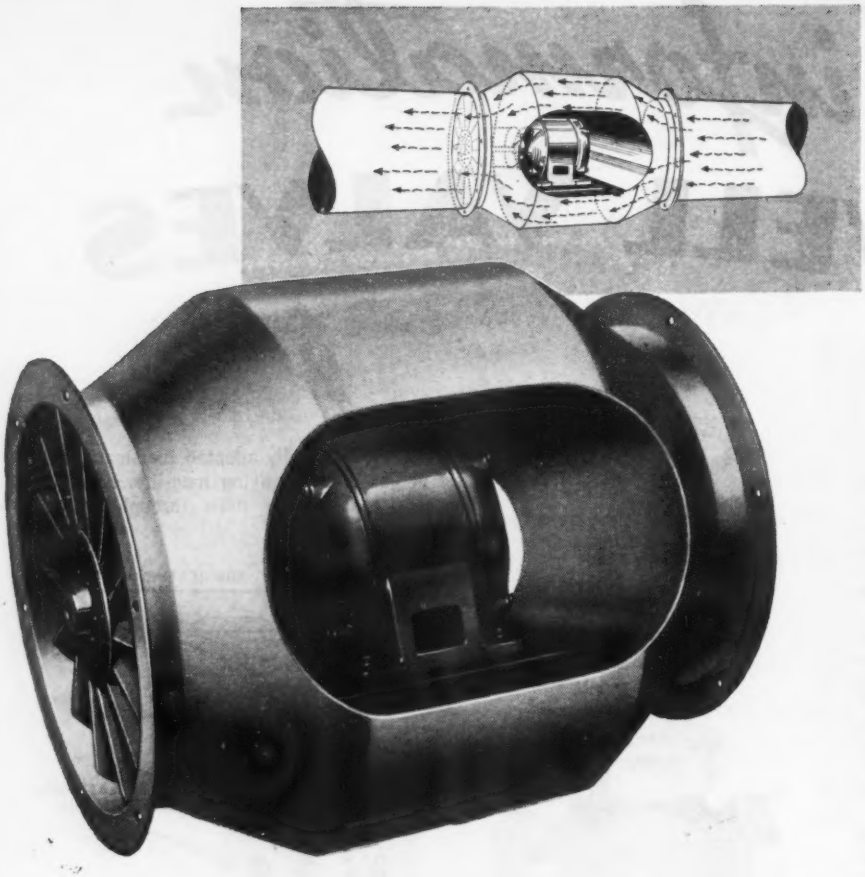


Fig. 1708
BRONZE "WHITE STAR" GLOBE VALVE

POWELL VALVES



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solved with

DeBOTHEZAT BIFURCATORS

This "Axial Flow" pressure fan unit conveys dusty, dirty, bacteria-laden air, and hazardous gases from the working spaces — solving many problems of employees' health protection.

Installation Is Easy

Installation of the Bifurcator is simple. It is readily installed in the present duct, just like a section of duct work. Operates equally well in any position — vertical through horizontal. No elbow bends or supporting platforms are needed.

How a Bifurcator Ventilator Operates

This different type of ventilating unit is sensibly designed and soundly engineered. The motor is readily accessible and is isolated from the fumes. *Air stream* is *by-passed* AROUND motor chamber *through twin passages,* which converge into the duct at both ends of the Bifurcator. The fan's non-overloading characteristic protects against costly motor failure. Available in a wide range of sizes and air capacities. Write for descriptive literature and prices.

DeBothezat Bifurcators

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EAST MOLINE, ILLINOIS

near the warp end starting to bind, and this shows on the face side. Take No. 1 warp end, No. 3 binds next to it, No. 5 next, etc. This brings the warp ends on the face side in a slight twill effect that can be seen when shading the face on an angle. Now here is where the optical illusion comes in—as the lifting and lowering strands bind together a high spot in the warp yarn directly in the center of the four filling-wise strands they are over. This high spot takes on the sheen at its glossiest appearance. As the warp strand slopes downward to the bind on the fifth pick, the light is slightly shadowed or deflected, and gives a different color-cast that is more of a dull appearance in the cloth.

On this particular green shade, the dull appearance is more of a leaf green and shows very dull if viewed on a close slant. There is also a dark green cast between the floating warp binds where the single filling bind shows through a glass. This darker shade is not perceptible except through magnification, as the warp-yarn sheen covers the filling shade.

There is only one method of hiding the effect you mention. That is more warp yarn and more filling yarn, and this means a more expensive piece of fabric.

Slubby Worsted Yarn

Technical Editor:

I am troubled with slubby yarn and have been for some time. I have tried every conceivable remedy except recombing our blended top, and as yet have found no solution.

The reason I have not recombed the stock is that we are not equipped for this operation, and although I have suggested it to the management, I have not been successful in having it done, the cost being too high.

I am enclosing several slubs just as I find them on the roving, slubs taken from the spun yarn itself and also a sample of my blended top. Would you advise me just what you think the cause might be? Is it the presence of short fibers in the top that bring about these slubs or would you say they originate from some other source? (9010)

The sample of top enclosed is perfectly clean and does not need recombing. It is of good, sound material and there should be no trouble in making a level yarn free from the imperfections, as shown in the sample enclosed.

It is suggested that the trouble is in the drawing operation. Carefully check from the gill boxes forward to find the spot where these slubs are made.

COUNTLESS *Busy*

Textile Mills DEPEND ON *Olate*

FOR SAFE PROCESSING

TODAY'S tight production schedules leave no room for processing errors. Fabrics must be turned out fast . . . quality specifications must be met to the letter!

That's why so many busy mills are depending today on Olate for their wet finishing operations. For this pure, neutral, low titer soap is made expressly to provide the maximum in safe, thorough, trouble-free processing . . . designed to help textile mills "deliver the goods."

Olate solutions are fluid, thanks to its low titer. You get thorough, even penetration of the cloth. You get protection against bare spots, uneven shrinkage, non-uniform fulling and poor felting. And you get the free rinsing so important in producing clean, sweet-smelling goods.

Yes, Olate is helping many textile mills to avoid costly processing errors. Perhaps there's a spot in *your* mill where Olate can help smooth out production.

"TOPS" for RAYONS and ACETATES

In scouring and dyeing rayon and acetate fabrics, you'll see concrete evidence of Olate's gentleness and safety. You'll see it in even shrinkage . . . in the splendid protection it provides against such costly trouble-makers as streaks, dye blotches, and chafe marks.

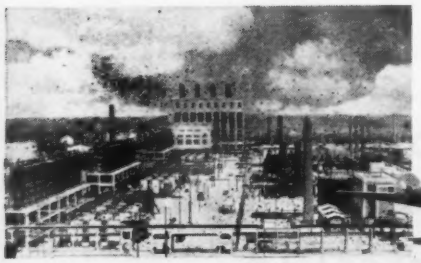
"TOPS" for WOOLENS, too

You can count on Olate to give you an efficient scouring and fulling job on woolens and worsteds. Olate has the all-important lubricating properties for these operations. Splendid detergent and emulsifying properties, too. Olate loses no time in loosening the dirt and oil in these fabrics . . . and holds them in suspension until they can be flushed thoroughly from the fibers.

Olate—Safe and efficient for every textile soap usage

PROCTER & GAMBLE

In the Nation's Industries . . .



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In Its Implements of War . . .

Pan American Clipper

LUNKENHEIMER VALVES

have established

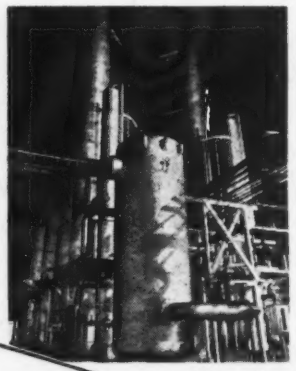
a Notable Service Record

In tanks and jeeps, bombers and pursuit planes, "ducks" and landing craft, submarines and Liberty cargo Ships . . . in the busy industries which turn out America's vast armaments . . . in giant refineries, synthetic rubber units, chemical and power plants . . . on every front LUNKENHEIMER VALVES are performing a *vital indispensable service.*

Highest grade materials, simplicity of design, rugged durability, super-accurate machining of every part—these are qualities which have made LUNKENHEIMER VALVES a leading choice of American industry for more than three quarters of a century.

In addition to superior workmanship which comes of long-accumulated experience, rigid tests at every step in the manufacturing process assure dependable performance and low-cost maintenance in these *Longer-Life* Valves.

Your LUNKENHEIMER Distributor is always ready to help you with problems of maintenance, repair, and operation. His complete facilities are at your service.



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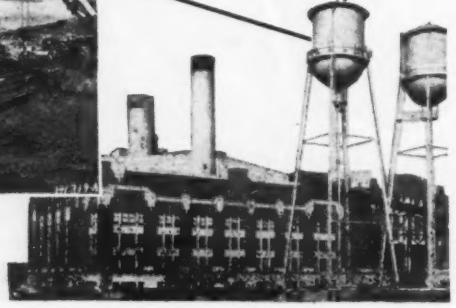
Ducks, Trucks, L.S.T. Craft

(Photo U.S. Signal Corps)



High Pressure Steam and Power

BOOSTING EMPLOYEES' Morale

Urges "Off-the-Job" Safety Program

An expansion of the textile industry's safety program to prevent off-the-job accidents, which he said are twice as numerous as accidents occurring in the plants, is urged by Prof. E. W. Winkler, acting director of the N. C. State College Safety Coordinating Center.

Praising the textile industry for "an enviable record in its attempts to reduce the accident freqency rate," Professor Winkler said that "management too often is inclined to take the attitude that the company has no responsibility in what happens off the job. Certainly management should realize that time lost by the skilled worker because of a home accident means financial loss to the company. The average textile plant has a great opportunity to promote home and school safety."

"Work and Worship" for V-Day Slogan

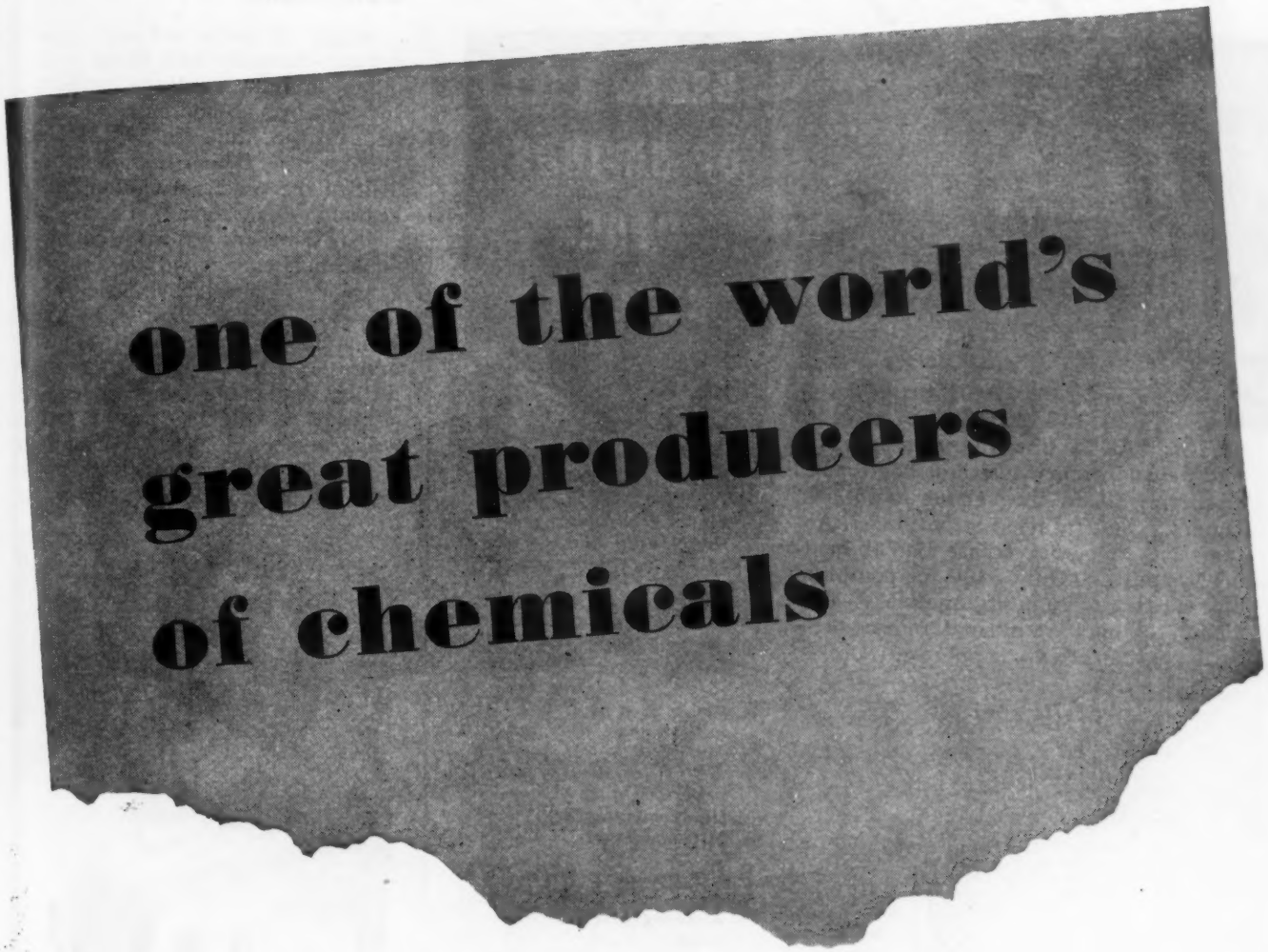
Julian C. Ewing, manager of the Wateree branch of the Kendall Mills, Camden, S. C., has suggested that the Camden slogan for "V" day, the day Germany capitulates, be "Work and Worship."

"Any riotous celebration before the termination of the Pacific war would be worse than a mockery," said Mr. Ewing. "It would be a shameful happening, an insult to the services and sacrifices of the men and women in the Pacific area."

Golf Tournament for Bigelow-Sanford Foremen

For the second successive year Bob Peters won the Bigelow-Sanford Mill golf championship as he turned in low gross score at the annual fall tournament of the Foremen's Forum held at the Antlers Country Club, Amsterdam, N. Y., recently. His score of 81

WYANDOTTE CHEMICALS CORPORATION



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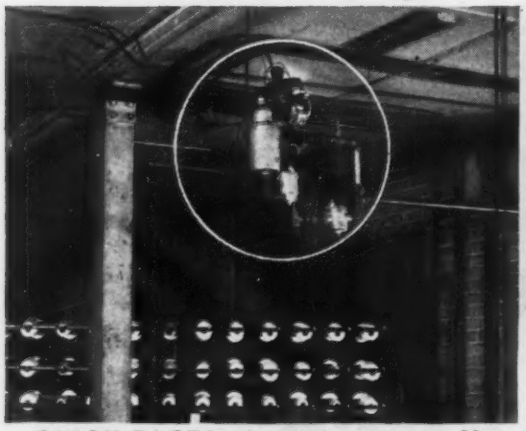
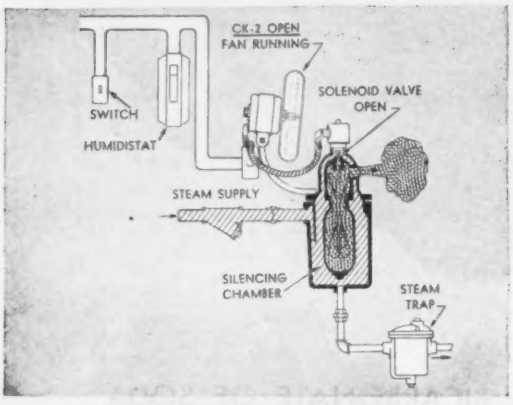
HUMIDIFICATION
brings big benefits



QUICK FACTS about Armstrong Humidifiers: Installed like unit heaters . . . circulates steam throughout room . . . Quiet . . . Seldom need attention . . . Automatic . . . Do not increase load on heating system . . . Only $100 for complete unit capable of humidifying up to 40,000 cu. ft. . . . Operation of small unit as little as 2c per hour . . . No dripping or puddles.



USERS TELL OF SAVINGS; OTHER BENEFITS

"Eliminated need for removing silk from knitting machines for storage in room with relatively high humidity. Increased production." — at Weldrest Hosiery Co., Ltd.

"We derive very good results during cold weather when heating system is used continuously."—Sakura Mills, Inc.

". . . Installed in our paper box plant . . . entirely satisfactory."—Mission Hosiery Mills.

Brittleness of fiber reduced by humidifier in weaving and warping room.

Speeds production in cotton spinning room.

Controls lint and dust in wool carding room.

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was tied by Dick Louer in the morning round, the defending champion retaining his laurels in an afternoon play-off. Fifty-three golfers teed off.

Defends Textile Labor Conditions

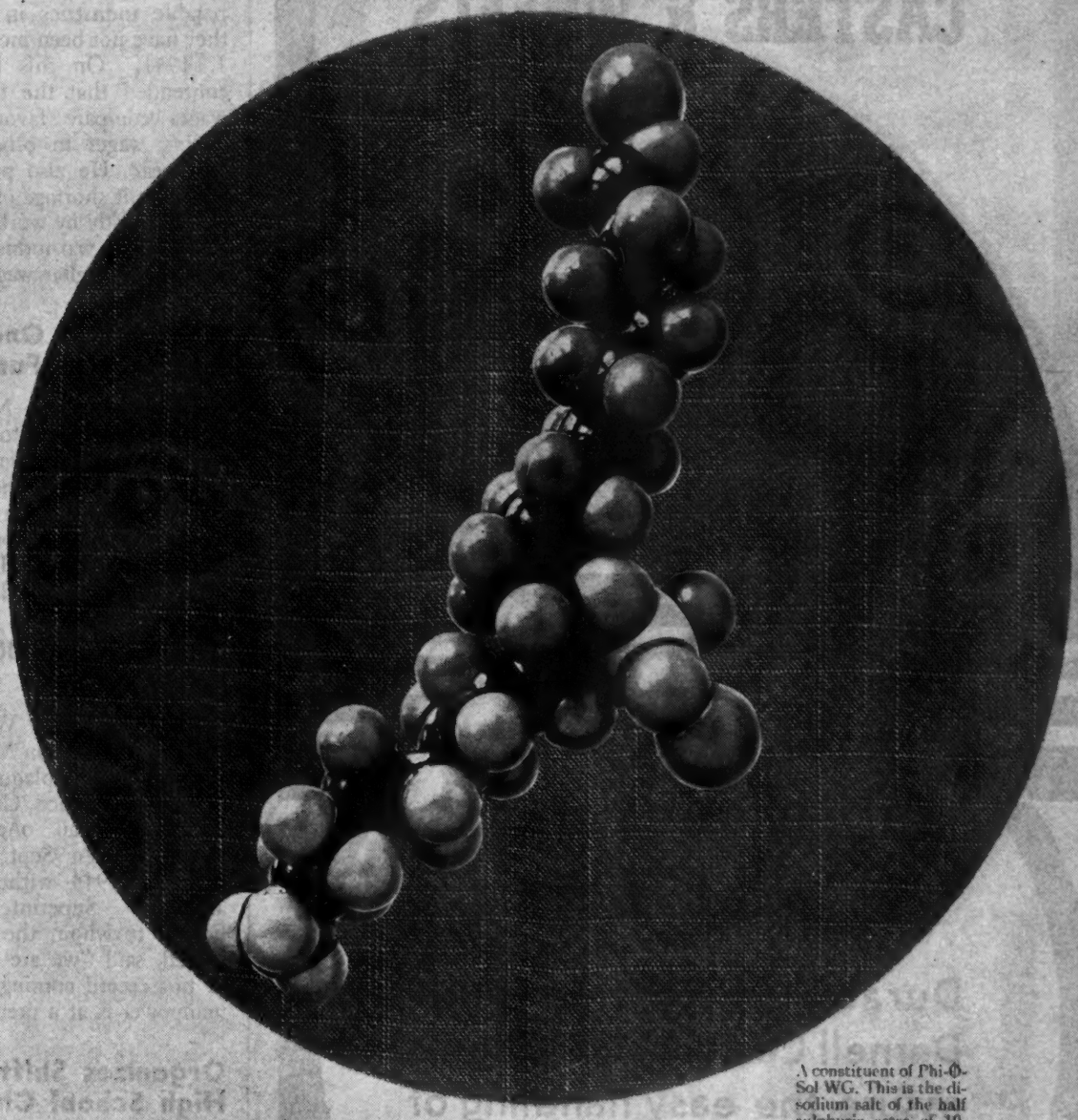
Wages of textile industry workers compare favorably with those of employes in other southern industries, and their living conditions are not substandard, according to W. Harrison Hightower, of Thomaston, Ga., president of the American Cotton Manufacturers' Association.

This statement was made following publication of a report that the Regional War Labor Panel, which heard the cases of the Textile Workers' Union and 23 southern cotton-textile mills, had found that many southern textile workers are living under substandard conditions because their wages are not as high as 71.5c an hour.

Mr. Hightower recalled that the mills, in giving their testimony at the

A STAND-UP WRITING DESK has been set up in the cafeteria of the American Viscose Corp's rayon staple plant at Nitro, W. Va., to make it easier for employees to write more often to friends from the plant who are in the services. The stationery supplied was prepared by plant employees and features a picture of the plant, a portrait of a soldier, sailor, marine, aviator and nurse, and the message "Greetings from the Home Front". A bulletin board at one side of the desk contains the addresses of all the men and women from the plant who are in the services. All letters from service men and women that reach the plant's Personnel Office are also posted on the board.

ONYX



A constituent of Phi-Φ-Sol WG. This is the di-sodium salt of the half sulphuric ester of 10-hydroxy octadecanoic.

HELPING MAKE PHI-Φ-SOL WG TICK . . .

The molecular model pictured above, represents one of the constituents of Phi-Φ-Sol WG. This molecule is a contributing factor in a successful pattern. Onyx research has produced in Phi-Φ-Sol WG a wetting-out medium that enables textile mills to wet out more fabrics in less time and with greatly increased thoroughness, and what is of equal importance, handle a larger variety of wetting operations than ever before.

Your inquiries are solicited

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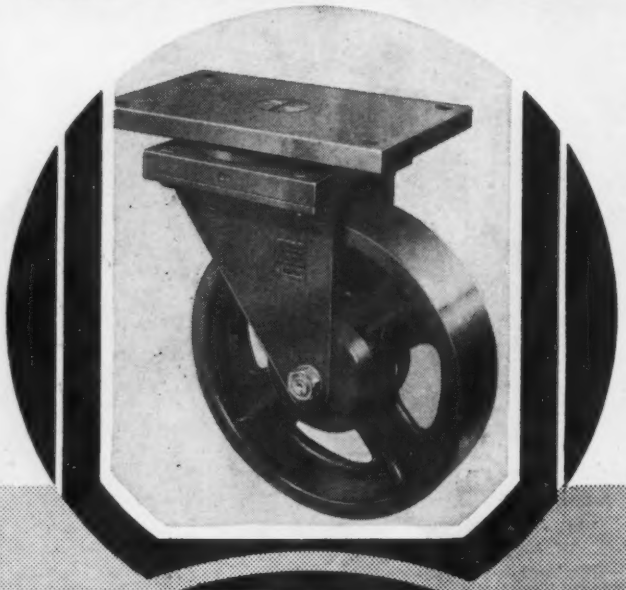

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IN WAR WORK

Durable, precision-built Darnell Casters and Wheels assure the easy handling of heavy loads – savings in floor and equipment wear soon pay for their cost.

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hearing, had contended that wages should be regarded as substandard only if they are below those of comparable industries in the area or if they have not been increased since Jan. 1, 1941. On this basis, the mills contended that the textile industry's wages compare favorably with prevailing wages in other industries of the area. He also pointed out that the current shortage of labor had been caused mostly by workers leaving their jobs to enter war industries where they earn much higher wages.

Contributes One Hour's Pay to War Fund

Employes of the National Hosiery Mills, Inc., the Fulton Hosiery Mills and American Hosiery Mills, all in Indianapolis, Ind., have contributed one hour's pay each to the annual United War and Community Fund. Members of the Hosiery Workers Union had charge of the solicitation.

Completes 1,000,000 Hours Accident Free

The High Point Weaving Co. Division of Burlington Mills recently was awarded a safety plaque by the Liberty Mutual Insurance Co. for completing more than one million man hours between Sept. 28, 1943 and July 10, 1944 without a lost time accident. Superintendent L. C. Easter, to whom the award was presented, said "we are especially proud of this record coming as it has when manpower is at a premium."

Organizes Shifts for High School Children

The American Viscose Corp., plant at Meadville, Pa., has inaugurated "victory shifts" on which high school boys and girls 16 years of age or older go to work on general production jobs to aid in the war effort. The plant is now utilizing two "victory shifts" on which students are employed on light work in the process department from 2:30 to 7 p.m. and 7 to 11 p.m. daily except Friday, and on Saturdays for one full shift from 7 a.m. to 5 p.m.

Gets National Security Award

Celanese Corp. of America at the Celco plant, Narrows, Va., was recently given the National Security Award by J. H. Wyse, State coordinator of the Virginia Office of Civilian Defense.

There's no Scarcity of Hooker Quality

Here's where Hooker can help you. Whenever you get a shipment of Hooker chemicals, you can be sure that it is of the same uniformly dependable high quality it has always been—made with the same high standard of purity which you have come to expect from Hooker. In fact, it's because we are determined to maintain this high standard that shortages sometimes occur.

Among the Hooker chemicals important to dye and textile chemists the four following are readily available in the quantities you need. If you are not now using them, a request on your letterhead will bring samples and further data.

ALUMINUM CHLORIDE, ANHYDROUS, $AlCl_3$, a gray crystalline solid available in 3 screen sizes. Soluble in Nitrochlorbenzene, Orthonitrochlorbenzene.

ANALYSIS

$AlCl_3$	99% min.
Fe	0.10% max.
Shipping Containers	Pails 50 lb. net
	Drums 500 lb. net

MONOCHLORTOLUENE (METHYLCHLORBENZENE), $CH_3C_6H_4Cl$, a clear colorless liquid insoluble in water, soluble in alcohol and ether.

BOILING RANGE	158 to 165°C
SPECIFIC GRAVITY	
at 15.5°C	1.080 ± .005
Shipping Containers	Cans 44 lbs. net
	Drums 450 and 900 lbs. net

SODIUM SULFIDE, Na_2S, a light yellow colored solid in flake form, soluble in water, slightly soluble in alcohol, insoluble in ether.

ANALYSIS

Na_2S	60 to 62%
NaCl	1.5% max.
other Na Salts	2.0% max.
Fe	10 to 15 ppm
Cu, Ni, Cr, Mn, Pb	1 ppm max.
Water of crystallization	36.5 to 34 %
Shipping Containers	Drums 90 and 350 lbs. net

SODIUM SULFHYDRATE, NaSH, a light yellow colored solid in flake form. Soluble in water and alcohol, insoluble in ether.

ANALYSIS

NaSH	70 to 72%
NaOH	0%
Na_2S	0%
NaCl	1% max.
Na_2SO_3, $NaHCO_3$	1% max.
Fe	5 ppm max.
Cu, Ni, Cr, Mn, Pb	1 ppm max.
Water of Crystallization	28 to 26%
Shipping Containers	Drums 90 and 350 lbs. net

OTHER HOOKER CHEMICALS FOR THE TEXTILE INDUSTRY

- Antimony Trichloride, Anhydrous
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- Liquid Chlorine
- Metanitrobenzoyl Chloride
- Monochlorbenzene
- Orthodichlorbenzene
- Paradichlorbenzene
- Paranitrobenzoyl Chloride
- Phosgene
- Sodium Tetrasulfide
- Sulfuryl Chloride
- Thionyl Chloride
- Trichlorbenzene

ARMY E NAVY

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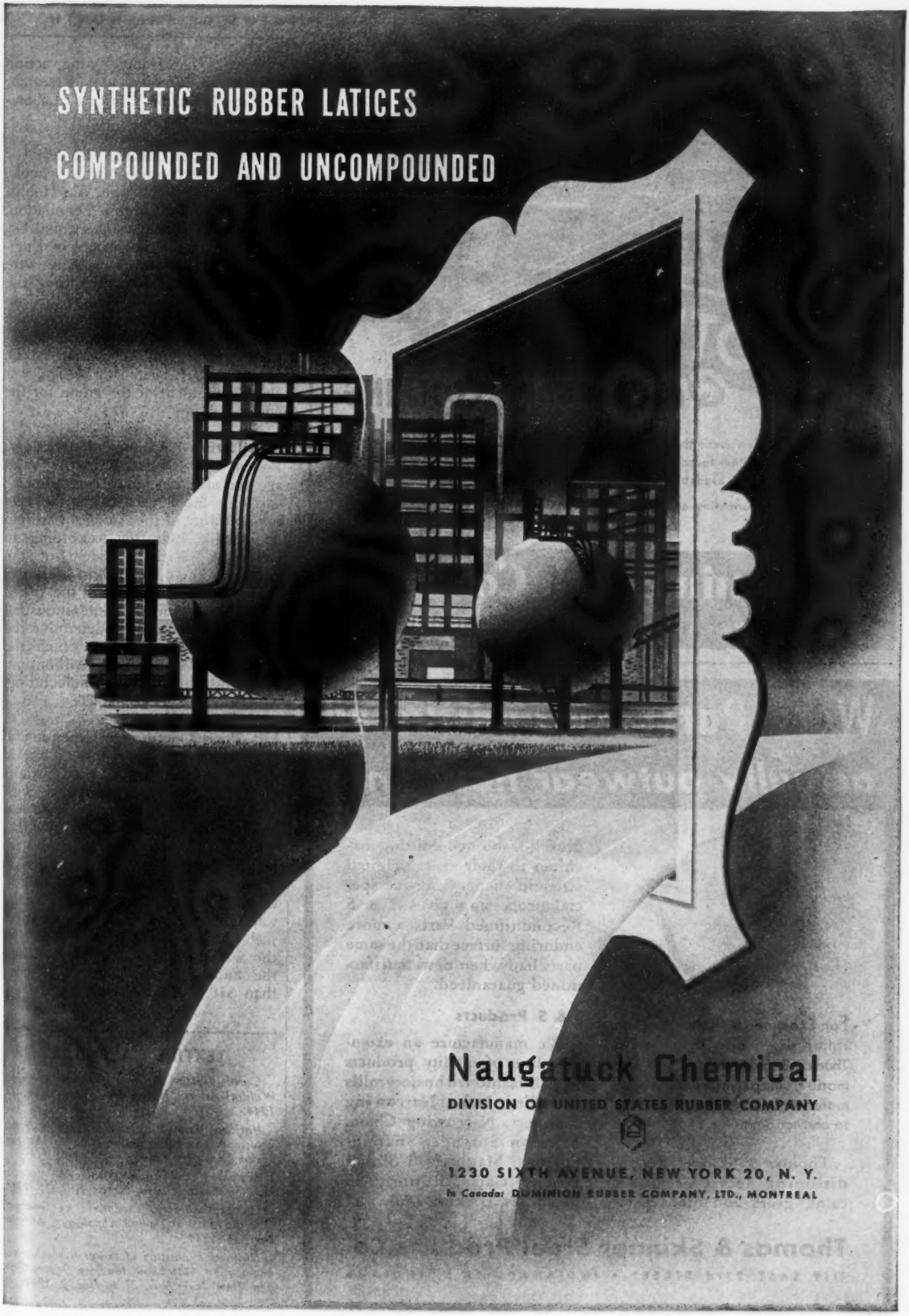
FACTORING FOUNDED ON SERVICE

News of the month

Suggests American Rayon Plants Abroad. Establishment of American rayon plants in world marketing areas was suggested as a means of combatting the post-war threat of Japanese competition, in a talk by John A. Spooner, vice-president of Textron, Inc., at a meeting of the Manchester Rotary Club in Manchester, N. H. The speaker predicted that the post-war synthetics program, by use of vastly increased supplies of milk and other farm products, will be an incentive for farm youths to leave city factory jobs and return to agricultural areas after the war.

Foundation's Research at Princeton. The Textile Foundation, Washington, D. C., has decided upon the immediate transfer of its program of fundamental research in the field of textile science from the National Bureau of Standards, Washington, D. C., to a new location at Princeton, N. J., in property provided by Textile Research Institute, of New York. As a result of this transfer it becomes possible to integrate the research effort of the Textile Foundation with the program of training and education at the graduate level which forms one of the five objectives of the Textile Research Institute. The Foundation has secured the part-time services of Prof. Henry Eyring as Acting Director of the research program of the Textile Foundation and the Textile Research Institute. Dr. Robert E. Rose, recently retired as director of the Du Pont technical laboratory, will act as Research Counselor for both concerns.

Starts Research Fellowships. The Textile Institute's program of graduate training went into effect at Princeton, N. J., Nov. 1. This program offers a number of research fellowships. Those accepted as fellows will receive $700 per year, and the Institute will also pay the graduate tuition fees and the work may apply toward a doctor's degree. Most of these students will be engaged in technical research but a few will work in economic research. Inquiries concerning the program may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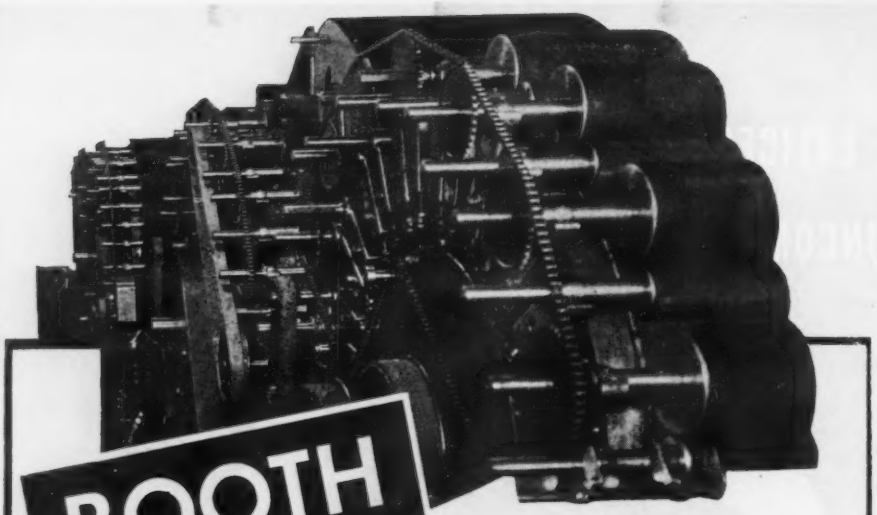

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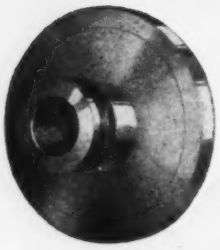

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be sent to Dr. Henry Eyring, acting director of Fundamental Research, Textile Research Institute Laboratories, Princeton, N. J.

Deans Meet in Canada. The deans of leading United States textile schools, together with Franklin W. Hobbs, chairman of the Textile Foundation, Edward T. Pickard, secretary, and Dr. F. M. Feiker of the School of Engineering, Washington University, were in Quebec and Montreal during the week of Oct. 15 discussing with Canadian officials and manufacturers ways and means of advancing textile education standards and procedures. W. D. Fales, of R. I. School of Design, was elected president of the group for the ensuing year.

Asks Lifting of Garment Restrictions. Present WPB orders restricting yardage and styles in men's and women's garments are a menace to the economic future of the American fashion and textile industries, according to Roscoe C. Rich, president of the American Wool Council, in a letter to Julius A. Krug, chairman of the WPB, asking that an impartial inter-industrial committee be named to determine the earliest effective date on which the orders could be eliminated without unduly disturbing the manufacturing, wholesale and retail markets.

Lift Price Control on Experimental Textiles. Experimental lots of certain textiles, apparel and related articles manufactured under contracts with war procurement agencies were exempted from price control by OPA after Oct. 21. When the contract price is $10,000 or less, the exemption is effected by the issuance of a certification statement to the contractor by the war procurement agency. A copy of such a statement is sent to OPA by the war procurement agency. When the amount of the contract is more than $10,000, which will be the ex-

TEXTILE CALENDAR

Cotton-Textile Institute, annual meeting, Waldorf-Astoria Hotel, New York, Nov. 17, 1944.

National Association of Woolen & Worsted Overseers, annual meeting, Hotel Manger, Boston, Nov. 18, 1944.

Boston Wool Trade Association, annual meeting, Parker House, Boston, Nov. 21, 1944.

Textile Operating Executives of Georgia, Georgia Institute of Technology, Atlanta, Nov. 25, 1944.

National Exposition of Power & Mechanical Engineering, 16th Show, Madison Square Garden, New York, Nov. 27 to Dec. 2, 1944.

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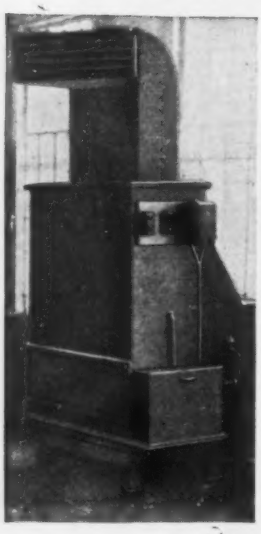

Humidifies by the principle of molecular suspension. There is no free moisture to rust equipment.

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Models for Cooling by Evaporation, give control of temperatures. Give-all-the-year-around air conditioning.

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ceptional case, the exemption is effected by the certification of the war procurement agency and the approval of the OPA.

Train Cotton Testers at Clemson. Through a cooperative arrangement with the Textile School at Clemson College, Clemson, S. C., a modern cotton-testing laboratory has been made available to the Division of Technical Service, Cotton-Textile Institute. The laboratory will make available to cotton mills facilities for training their laboratory workers in the technique of fiber testing.

Cotton Pickers Needed. A critical labor shortage is threatening the harvest of the South's estimated 11,000,000-bale cotton crop. From all sections of the belt come the same stories about cotton being ready for picking, the lack of field hands, delays in movement to the ginners, and rainy weather, all combining to make the situation "the worst in Southern history."

Nylon Controls Yarn Tension. Bristles of nylon are now being used in shuttles as a means of controlling the tension of yarn as it comes off the bobbin in the shuttle during weaving. It is stated that nylon bristles last three to four times longer than natural bristles.

Controlling Wool Shrinkage. A new process whereby wool shrinkage and felting is controlled by adding synthetic resins inside wool fibers has been developed by J. B. Speakman and T. Barr at Leeds University.

Davis Patents Freed. The Interwoven Stocking Co., after developing a self-supporting elastic top for men's hose under the Davis patents, has given up its exclusive license so other mills may utilize the patents on a royalty basis. This patent eliminates the necessity of transfer knitting.

Laminated Fiberglas. Complete cabin structures for the Army R-6 helicopter, made of Fiberglas which is laminated and reinforced with a thermo-setting resin, are now being made at the Mishawaka, Ind., plant of the United States Rubber Co.

Study of Radiant-Energy Drying. A study of radiant-energy drying is being conducted by the Textile Research Institute, Inc., at its applied research laboratories in Princeton, N. J. Studies will include radiant heat obtained from various types of electric lamps, and, for reference, energy from more limited ranges of wave length in both the

Staley's capacity to produce and ability to deliver—backed by a consistent policy of cooperation and service—are vital factors that prompt mill owners, and other mill executives to say—"We *like* to do business with Staley's".

Staley's Textile Starches are 100% laboratory controlled in every step of the processing. This assures uniform quality and dependable performance from every shipment—day after day and year after year. Developed by skilled chemists, Staley's complete line of thick and thin-boiling starches is available for every specific textile use. Write, wire or telephone for information about the Staley Starches for your mill requirements.

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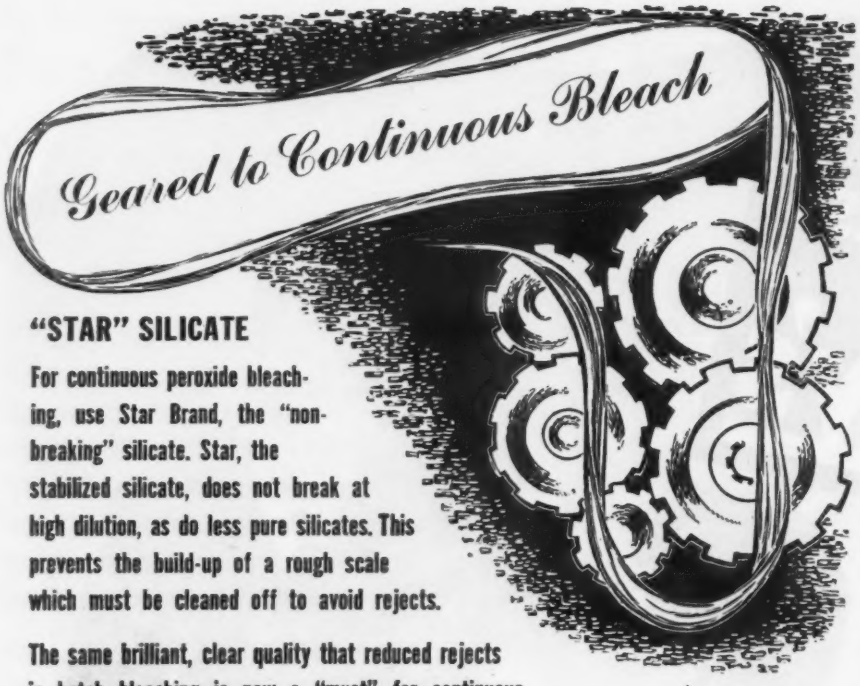

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For continuous peroxide bleaching, use Star Brand, the "non-breaking" silicate. Star, the stabilized silicate, does not break at high dilution, as do less pure silicates. This prevents the build-up of a rough scale which must be cleaned off to avoid rejects.

The same brilliant, clear quality that reduced rejects in batch bleaching is now a "must" for continuous peroxide bleach. We welcome your request for more information and proof.

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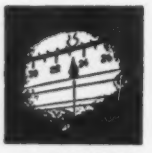
"U.S." RING TRAVELERS

PERFECT BALANCE
Weighs same on both sides. Straight part of shank is in center of gravity. Distributes lubricant and wears evenly. Will not pivot twisting self and rayon.

THE NE-BOW
Prevents yarn ends flying out, provides ample head-room for threading—prevents binding on ring. Note "bend inward" at top of horn.



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Great pioneering "U.S." contribution to smooth spinning twisting. Eliminating angular edges gives uniformity of tension more even yarn, less "fly."

BECAUSE we know ALL the things that can make or break Ring Traveler performance, we produce Travelers for specific uses, that give the utmost life and service under all conditions. Design, balance and lubrication, as well as metallurgical composition, are carefully considered. Is it any wonder that so many of the leading mills use a U. S. brand? Consultation without obligation!

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U.S. RING TRAVELER CO
AMOS M. BOWEN
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luminous and non-luminous fields. The comparative heat penetration and drying rates for the common range of fibers in loose form, as yarns, fabrics, and felts will be included.

Fabric Water Tank. A new 150-gal. collapsible cloth and rubber tank made from 8-oz. duck cloth and coated with synthetic rubber, is being produced by United States Rubber Co. for use by Army Air Forces ground crews to assist in eliminating the dust hazard encountered on newly made and captured air fields in war areas. This tank will be used for spraying dry air fields, and as a means of carrying the Army's water supply as the troops advance.

Fabric Air Dust. To meet wartime needs, a new type of portable air duct —flexible but non-collapsible—has been developed by Du Pont engineers for either blower or exhaust systems. Non-collapsible "Ventube" is a sleeve or tube of standard "Ventube" impregnated cloth, either regular or fire resistant, with a tempered steel helical spring inside it.

LEGAL NOTICE

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACTS OF CONGRESS OF AUGUST 24, 1912, AND MARCH 3, 1933

Of Textile World, published Monthly at Albany, New York, for October 1, 1944.

State of New York }
County of New York } ss.

Before me, a Notary Public in and for the State and county aforesaid, personally appeared Joseph A. Gerardi, who, having been duly sworn according to law, deposes and says that he is the Secretary of the McGraw-Hill Publishing Company, Inc., publishers of Textile World, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, as amended by the Act of March 3, 1933, embodied in section 537, Postal Laws and Regulations, to wit:

1. That the name and address of the publisher, editor, managing editor, and business managers is: Publisher, McGraw-Hill Publishing Company, Inc.; Editor, Edwin D. Fowle; Managing Editor, William B. Dall; Business Manager, William Buxman; all of 330 West 42nd St., New York City 18.

2. That the owner is:
McGraw-Hill Publishing Company, Inc., 330 West 42nd Street, New York City. Stockholders holding 1% or more of stock: James H. McGraw; James H. McGraw, Jr.; James H. McGraw, Jr., Curtis W. McGraw and Edwin S. Wilsey, Trustees for: H. W. McGraw, J. H. McGraw, Jr., D. C. McGraw, C. W. McGraw; Curtis W. McGraw, Donald C. McGraw; all of 330 West 42nd Street, New York City; Edwin S. Wilsey and Curtis W. McGraw, Trustees for J. H. McGraw, 3rd, Madison, New Jersey; Mildred W. McGraw, Madison, New Jersey; Wilson C. Laucks, Spruce and Canal Sts., Reading, Pa.; Grace W. Mehren, 73 No. Country Club Dr., Phoenix, Ariz.; Margaret Stump, 1418 Rose Virginia Rd., Wyomissing Park, Reading, Pa.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 percent or more of total amount of bonds, mortgages, or other securities are: None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

J. A. GERARDI, Secretary.

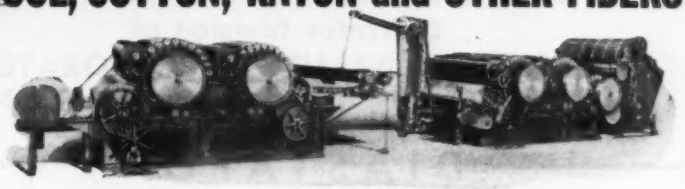
McGRAW-HILL PUBLISHING COMPANY, INC.

Sworn to and subscribed before me this 28th day of September, 1944.

[SEAL] ELVA G. MASLIN.
(My commission expires March 30, 1946.)

Check the advantages of PROCTOR GARNETTS

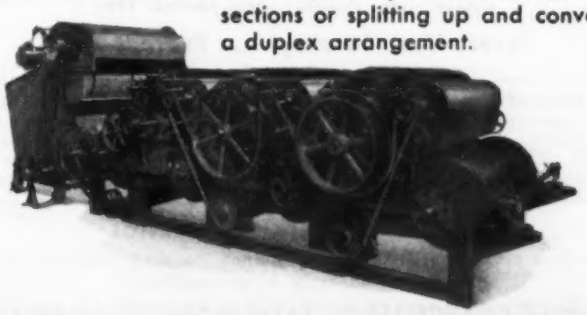
FOR WOOL, COTTON, RAYON and OTHER FIBERS



The Proctor Duplex Garnett Unit (two garnetts with an intermediate feed) is ideal for opening of hard twist worsted threads. The intermediate feed principle crosses the fibers for the finisher so that more threads will be opened. Not only are fibers opened up much better than is usually possible, but production is held at very high levels.

The advantages of Proctor Garnetting equipment are readily recognized by most leading mill men. In addition to Proctor Garnetts for worsteds and wools, Proctor engineers have developed highly efficient garnetting equipment for use in handling rayons, nylons, cottons and a wide variety of other fibers. Production figures run high, but vary of course with the type of fiber being garnetted. The metallic wire used in all Proctor Garnett cylinders is processed in our own shops on machinery designed and built by our own staff of engineers and mechanics. Fineness of clothing and type of metallic wire used is varied to suit stock being worked. Proctor Garnetts are built in sizes to meet individual production needs. Before investing in another single piece of garnetting equipment, let Proctor engineers consider your problem and recommend machinery to fill your requirements.

For medium twist yarns and waste of many kinds, including rayon and cotton, the Proctor 3 Cylinder Garnett is extremely well suited. The worker and stripper arrangement is very advantageous. Wiring and feeder can be varied to suit stock. Sectional construction permits addition of extra sections or splitting up and converting to a duplex arrangement.



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Synthetic Rubber Threads

(*Continued from page 141*)

and applying twice as much stress to neoprene as to the natural, all other conditions remaining equal. When the fabrics were analyzed, important differences were found as shown in Fig. 4.

Owing to less picks and a shorter stretch, the neoprene fabric produces faster than a natural rubber fabric and requires less material per unit of length, but the rubber content of the natural is 37% greater. On the basis of the original thickness, natural is 4.5% thinner, while neoprene is 18% thinner, thus indicating about 14% more strain for the latter.

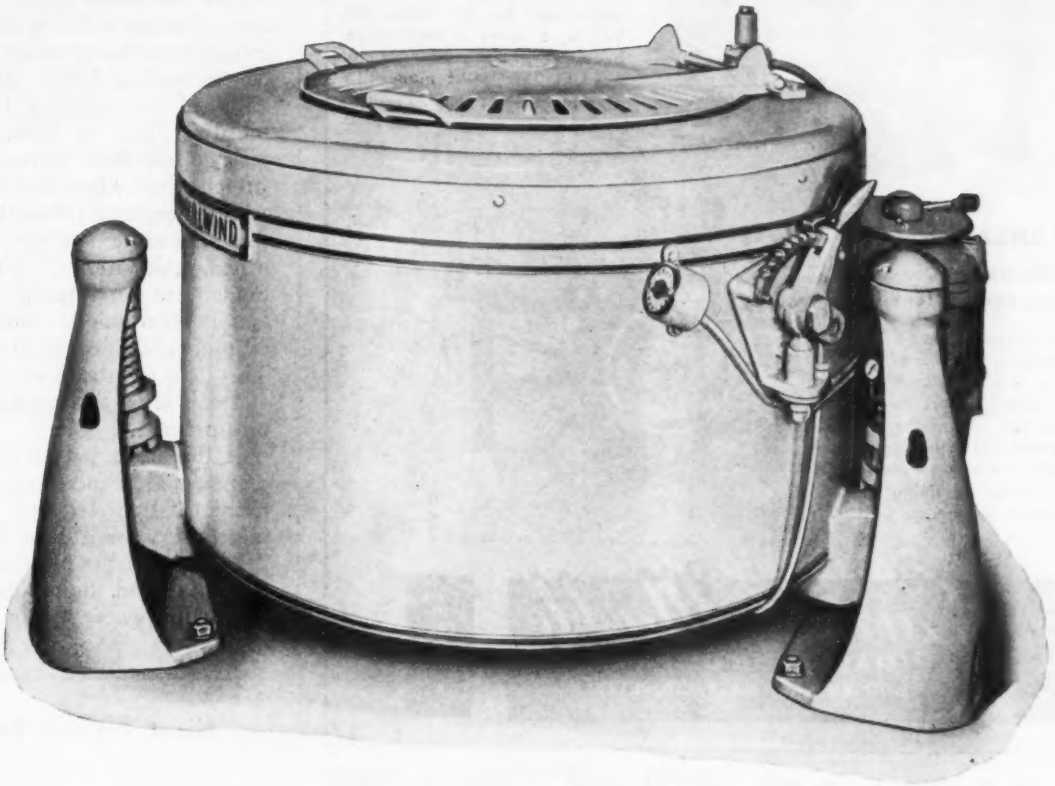
During the weaving of the two fabrics, experiments were made using the same stress on the natural rubber as was used on the neoprene fabric. This proved impractical because many threads were ruptured. The stress was then changed so that each fabric was stressed the same amount. This resulted in a fabric carrying very little stretch and was impractical from that standpoint.

ELASTIC LIMIT. It would be quite helpful to establish the elastic limit of different types of rubbers under actual weaving conditions; then, fabrics would not lose as much as 18% in thickness. Naturally, this limit would vary according to fabric construction. In a compact twill, woven with rayon filling of high pickage, the limit may be different from that found in a police web, or webs which are full of filling floats.

Some indication as to limit could be made by marking 5 or 6 rubber threads with a fine colored thread. The marks should be 3 in. apart when rubber is at rest. Place another mark 1 in. from the colored one, using a white thread. Then apply enough stress to stretch the colored marks to 9 in. Weave, finish, and analyze 9 in. of the fabric and compare the measurements at the marks. If too much strain has taken place, adjustments in the amount of stress can be made and another sample produced marked as the first one, but woven with less stress. From these data a critical point would develop and show the relation between the actual stress during weaving and the resulting strain from this stress.

SUMMARY. Natural rubber is more sensitive to a unit of stress than neoprene and less sensitive to strain; their tensile strengths under equal conditions are approximately equal; each type in itself possesses equal uniformity regarding strength, stretch,

BETTER EXTRACTION . . . WITH FEWER EXTRACTORS



Yes, the Fletcher "Whirlwind" Extractor does it *better* with *less*. The secret is *extra* speed which is due to these Five Fletcher Features . . .

1—Designed for shorter loading time.

2—Smooth, extra fast acceleration enables the Fletcher to attain maximum speed in the shortest possible time.

3—Actual running time cut almost in half. The High-Speed "Whirlwind" is designed and constructed to give 1000 RPM with a 48" diameter basket.

4—Automatic hydraulic brake and finger-tip control brings the Fletcher to a quicker stop than is usual.

5—Easier and *faster* unloading.

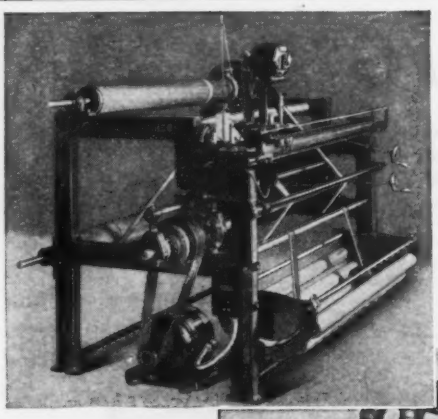
It all adds up to this—more thorough extraction *faster*, means *fewer* extractors to get out a given volume of work. Let us send you our Bulletin 52-B which describes the Fletcher "Whirlwind" with regular speed. Full details of the "High Speed Whirlwind" in Bulletin 53.

Other Fletcher products include the "Victory" Loom, the "Apex" Twister and numerous additional types of Extractors, Narrow Fabric Looms, Throwing Machinery, Spindles in the textile equipment line. We'll be glad to send you bulletins, advice on installations and keep you informed of new developments. Just write us on your letterhead.

FLETCHER "WHIRLWIND" EXTRACTOR

. . . THE ALL AROUND EXTRACTOR

FLETCHER WORKS GLENWOOD AVE. & SECOND ST., PHILA. 40, PENNA.



DUPLEX SEWING and WINDING MACHINE

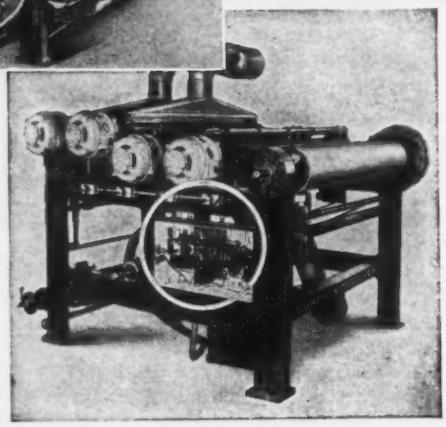
For use with CMR Shear in handling Rayons

A high production machine for making up and supplying an automatic shear with rolls of rayon up to 38" diameter. Where a scray is impractical because of the danger of wrinkles, this latest model duplex machine is used.

CMR SHEAR

with new Electronic Control for Rayons and Cottons

The automatic seam guard gives complete full width protection. When a seam comes along the individual motors instantly reverse and run in the opposite direction (as in back-grinding) until the seam passes; immediately resuming full speed rotation in the cutting direction.



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has Nylon Bristles. Has 1/5 absorption of dyes and inks. Far longer life than other fibres. Easily cleaned. Can be used for more than one color.

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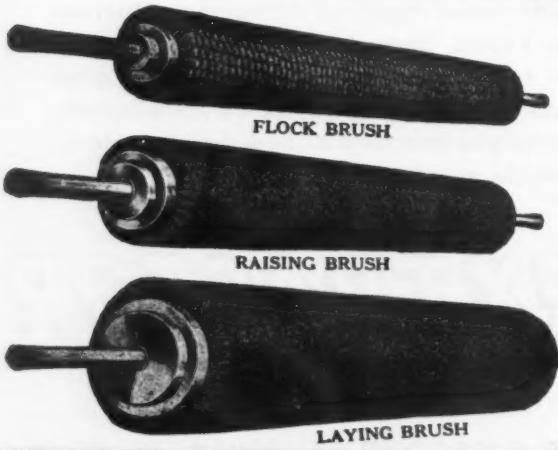
● Experienced textile mill men KNOW the Jenkins Cylindrically Wound Metal Core insures satisfaction, economy. Precise alignment. Maintained strength. No crack, warp or split. No bristle shedding. Jenkins Brushes entirely machine made, absolutely uniform.



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Jenkins Brushes are REFILLABLE. Worn bristles renewable. Metal core can be rewound, brush made EQUAL TO NEW. This great economy often decides mills to "standardize on Jenkins Brushes". We will be pleased to give you worthwhile advice, based on our long experience, regarding their use on your machines.

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Manufacturers of textile brushes of every description

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and strain. Recovery is approximately the same under equal elastic limits.

It would be well to avoid placing the neoprene rubber on the beams with too great a tension, since it must remain in this condition over quite a period of time. It may be necessary to reduce the loom picks, which would tend to increase fabric stretch. Under certain conditions when natural rubber is used, a longer rubber can be obtained by reducing the stress intensity. This, in turn, reduces the pickage and thus increases the fabric stretch. Just where the critical points are for neoprene rubber threads under this procedure has yet to be established. Alteration in lengths of the binder and gut threads, as well as the factors mentioned, could change the ratio of rubber length to fabric stretch. This item of ratio is an important one and can serve as a yardstick for other measurements.

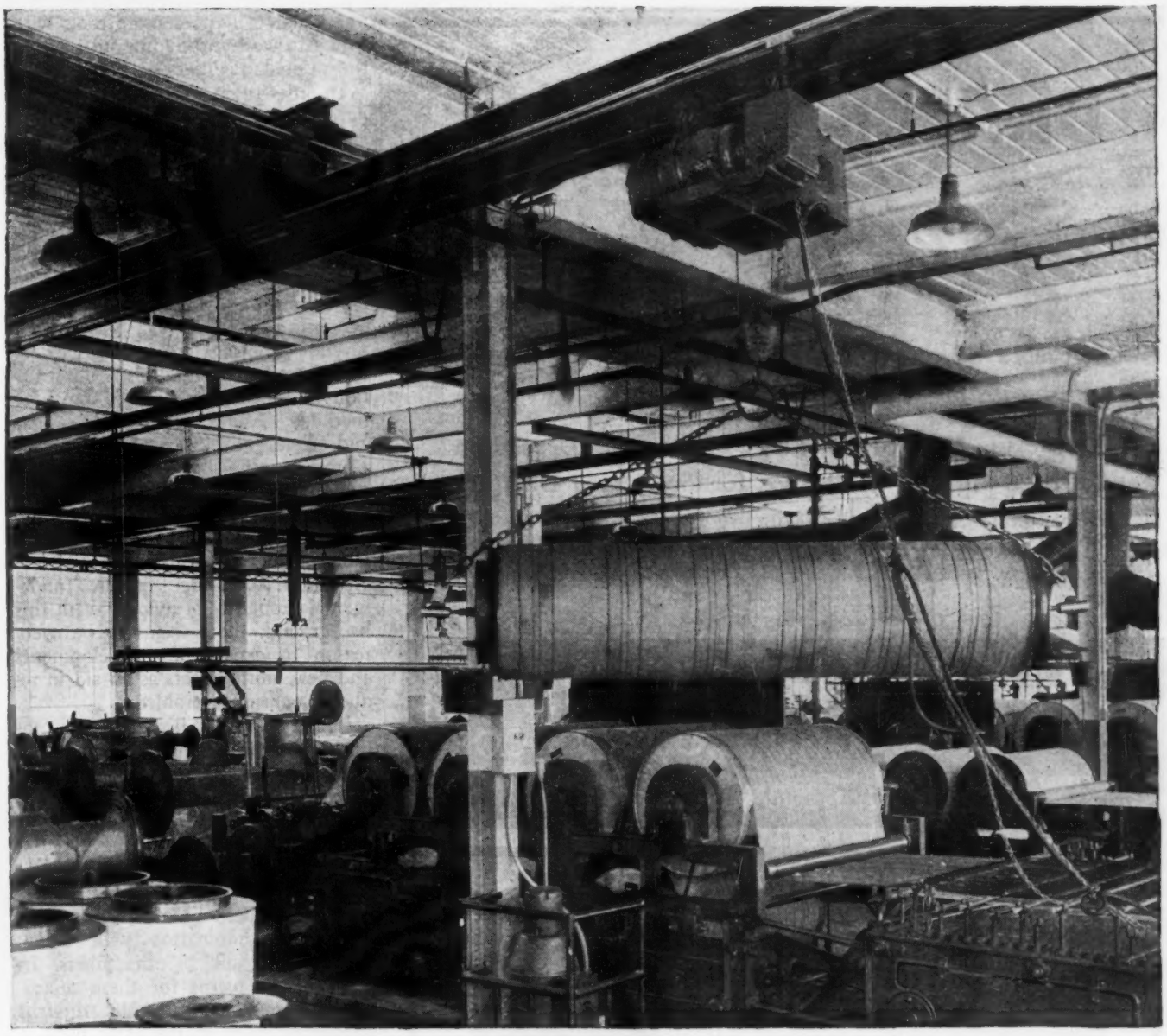
If the stress sensitivity of the neoprene could be increased and the sensitivity to strain reduced (at least not increased), this thread would possess the characteristics peculiar to the natural rubber and the modulus of elasticity of the two would be more closely related.

New Nylon Fabrics

(*Continued from page 107*)

insect netting provides valuable experience in handling the yarn, which can be utilized later on in the weaving of marquisettes for many uses. Even a nylon parachute fabric built up slightly in construction might suggest a sleeve lining. The principles of construction of the present nylon poncho fabric in a lighter weight could be used generally in the building of coated fabrics. The oxford-weave fabric being made at present seems to be well adapted for moisture-repellent uses.

The question might be raised as to what nylon will be like after the war or in what respect it will differ from the prewar product. Nylon includes a whole family of chemicals, many of which can be spun into fibers. Up to the present time, all development work in the fabrics field has been carried on with one nylon only. Also, up to the present time, practically all fabrics made have been from yarn with relatively coarse filaments. Finer-filament yarns, as well as coarser-filament yarns, have been developed to meet military fabric needs; and from results already available it is known that these yarns will go a long way toward improving the hand and texture of many postwar fabrics. With greater flexibility in yarn sizes and in denier/filament ratios, as well as in luster, the fabric-develop-



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Keep this strong, rustless metal in mind when you plan your peacetime equipment. For more information about ARMCO Stainless write to The American Rolling Mill Company, 3431 Curtis St., Middletown, Ohio.

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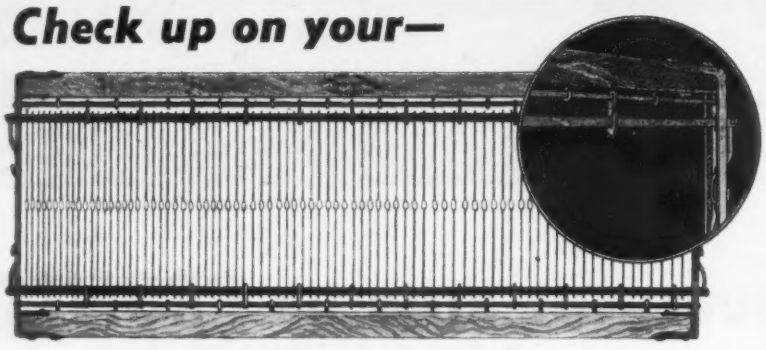

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ment man will have more tools with which to work in building into fabrics the desired qualities.

In order to do a sound job of fabric development, it is first necessary to analyze the use for which a given fabric is desired and then determine what yarn or yarns can best satisfy that use. Next in importance is the necessity of determining a way to transmit yarn properties into fabric properties. This involves both fabric construction and fabric finishing. From the discussion of fabric finishing, it can be seen that several different effects can be obtained from the same fabric construction by employing different finishing methods. Mere juggling of deniers and of ends and picks, plus a lick and a promise in finishing, will not develop sound nylon fabrics. Starting with the hosiery experience and adding the information developed from military fabrics, there has been built up a well-grounded knowledge of the fundamental properties of nylon. With this background, there seems to be every reason to expect new developments and new fabric effects as an aid in reducing consumer problems.

These things will not be accomplished on postwar nylon fabrics without encountering many problems. There will be problems in handling the yarn in the mills, problems of sizing, and problems of dyeing and finishing.

There are probably many fabrics which can best be made by using nylon in combination with rayon, wool, cotton, silk, or other fibers. In choosing the yarns for these mixed-fiber fabrics, considerable thought should be given to the yarns used in the combination and their relationship to each other in the fabric. Each yarn should be present in a given fabric for a definite purpose and should contribute some worth-while qualities to the fabric. While there has been practically no work done along this line up to the present time, the possibilities are many and cannot be ignored.

NYLON STAPLE. There has been considerable interest in the development of a nylon staple and in the high-strength spun yarns which conceivably might be made from it. The only real development to date along such lines has been by using nylon yarn waste, with the spinning being done principally on the silk system. The results of this work have contributed considerably to our total knowledge of nylon, although they have not been large in scope. The development and manufacture of a nylon staple and spun nylon yarns constitute a task to be undertaken some time after nylon has been released for civilian use.

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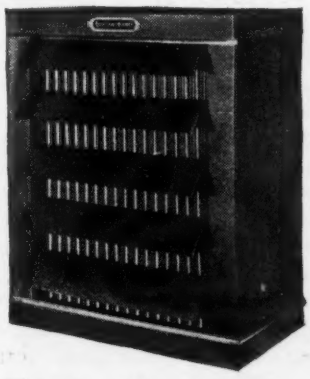
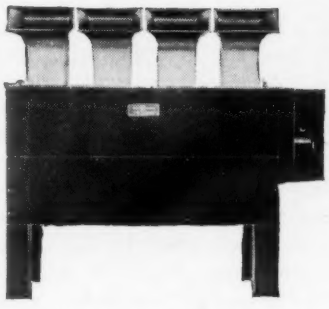


American Blower Venturafin Unit Heater (Horizontal Type).



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Progress in Textile Chemistry

(*Continued from page 129*)

strong rayons, and acetate were described by A. W. Etchells, Hellwig Dyeing Corp. A condensation of his paper will appear in an early issue of TEXTILE WORLD.

WOOL DYEING. "Wool fiber can withstand having more done to it than any other fiber," according to R. H. Kienle, American Cyanamid Co. The final results obtained in dyeing of wool are dependent upon its previous history. Each chemical process that wool undergoes, in turn, influences its dyeing properties. Reaction of heat, grease and oil, scouring, carbonizing, fulling, bleaching, shrink-control treatment, and chemical modification of wool were all studied to determine their effects upon dyeing properties of wool.

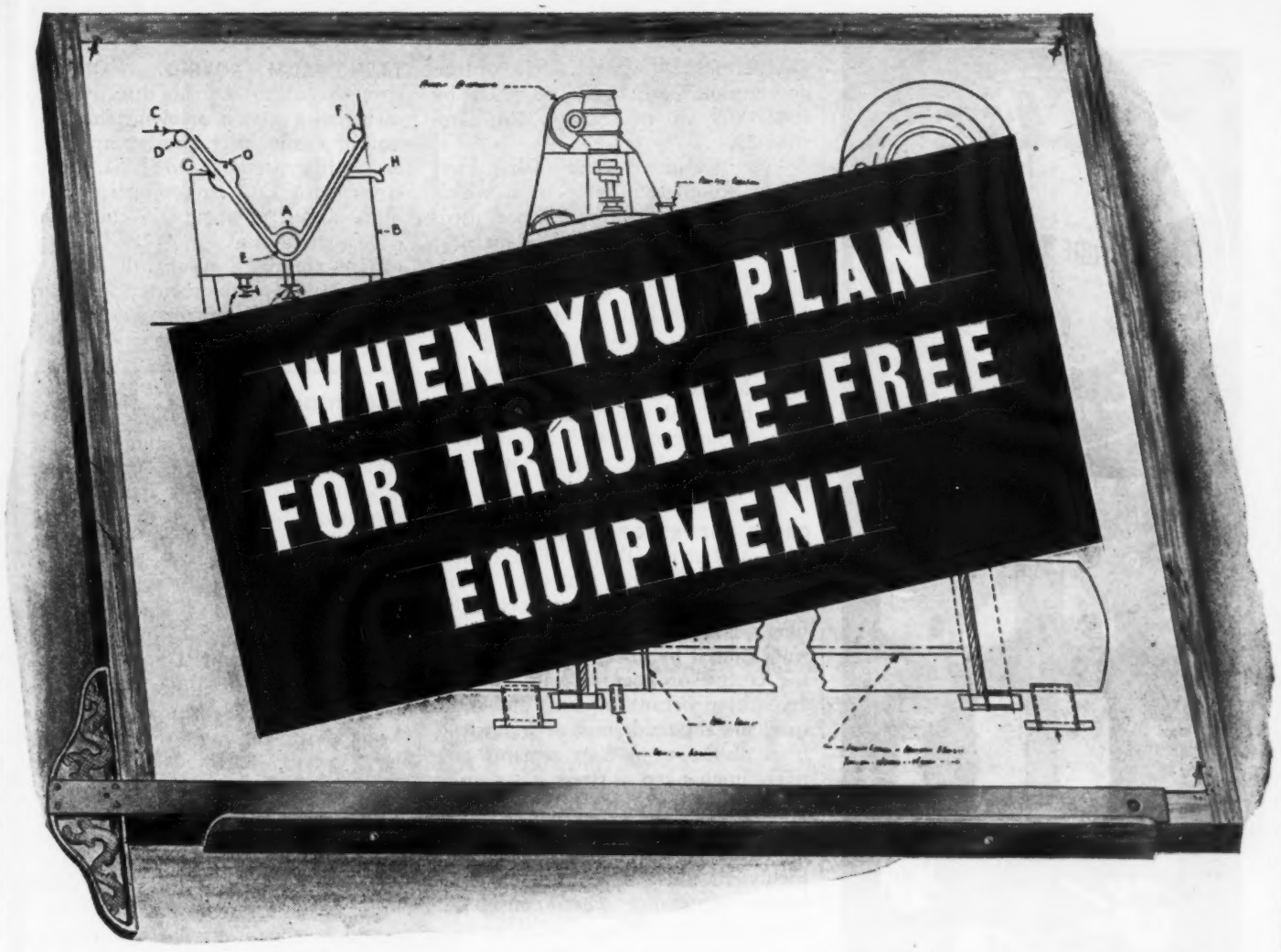
INDIGO DYEING. "During the last year, over 3,000,000 lb. of wool stock has been indigo dyed by a continuous process, and the manufacturing losses of the stock have been held to ½%," stated Werner Von Bergen, Forstmann Woolen Co. This process, developed with the aid of George Lindberg of Du Pont, is capable of handling 550 lb. of raw stock an hour. The unit, constructed by C. G. Sargent's Sons Corp., is 200 ft. in length and consists of eight sections. A total time of 45 min. is required for the stock to pass through.

Essentially, the continuous-dyeing machine consists of a feeder which feeds to a regular wool scouring bowl where the wool is wet out at 140° F. Thence it travels to an indigo bowl where it remains for 6 min. before passing to an oxidizing bowl. After spending 3 min. in the oxidizing bowl, it is given a 1½-min. rinse before being dropped into a feeder.

The second feeder passes the stock into a second bowl of indigo for a 6-min. immersion and then to a re-oxidation bowl. A 7½% penetration of indigo is obtained in the second bowl. It has been found that by re-oxidation it is possible to load the stock with indigo as high as 30%, if desired. A rinse follows and then a feeder passes the stock to a dryer.

Wool dyed by the continuous process meets U. S. Navy specifications; indigo-dyed wool has been made into fabrics that have a final strength equal to that of an undyed fabric.

SHRINK-RESISTANT SOCKS. According to Capt. H. F. Clapham, Office of



On drafting boards in the textile industry, designs for new equipment are taking shape.

For kettles and tanks . . . vat linings, rolls and heating coils . . . for hoppers, reels and other dyeing and bleaching equipment, corrosion resistant Monel is specified . . . time after time.

Through more than 25 years of experience with this strong, tough alloy, textile manufacturers have found that it retains a smooth, hard finish *even after years of contact with salt, alkalies, acids and dye liquors.*

Monel lessens the danger of off shades. It does not absorb dyes . . . has a minimum effect on colors. Cleaning is quick and easy . . . no boil out is necessary.

In addition, Monel is readily fabricated. It may be welded, soldered, brazed, machined, drawn or forged by any of the commonly used methods.

Although today's stock is not large, some standard mill forms—sheet, rods, tubes, angles and wire—are available. A limited selection of bolts, screws, rivets, cotter pins and chain . . . as well as cast fittings and pump parts . . . may also be obtained for repair or replacement purposes.

After war needs have been met, Monel will be generally available. Specify it in your plans for new equipment.

5 MORE REASONS WHY MONEL IS SPECIFIED

High strength and fatigue resistance facilitate improved designs.

High strength and resistance to corrosion lengthen equipment life . . . reduce maintenance expense and downtime.

Takes on high polish in use . . . no roughness to snag or tear fabrics.

Unaffected by most of the commonly used dyestuffs.

Eliminates possibility of rust damage.

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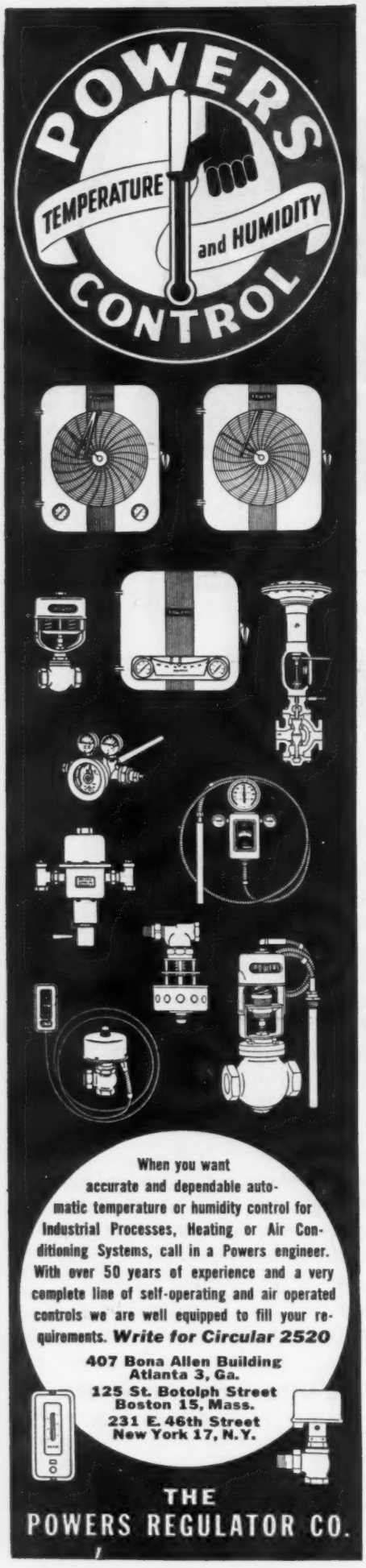
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Quartermaster General, 60% of the cushion-sole socks now procured by the Army are treated for shrink resistance.

Four treatments are available. First is the chlorination process in which either chlorine or bromine is used. This method can be handled by most hosiery finishers in their present equipment. Second is a resin treatment too complicated at present for socks, but which is used to advantage on piece goods. Third is a method utilizing alcoholic potash solutions that require special equipment of an expensive and complicated nature; however, it is ideal for treating dyed and finished goods.

CRIMP THEORY OF FELTING. Dr. Milton Harris, Textile Foundation, advanced the theory that wool felting is not caused by the interlocking of fiber scales but by the crimping of wool caused by fiber readjustment. As the cortex, or fiberous cells, contract and soften because of heat and moisture, and the epidermis, or scale structure, of the wool fiber remains relatively unchanged, a stress is set up in the fiber. The result of the stress is fiber curl. Surface friction, elasticity, migration of fibers, and the proto-gel theory all must be considered as of minor importance when considering the reasons for felting of wool, he said.

SHRINKAGE AND FELT CONTROL. Finished 56-in. woolen fabrics may now be woven 57 to 58 in. on the loom, instead of the usual 66 in., when fabrics are given a resin treatment, stated Dr. J. E. Lynn, American Cyanamid Co.

Strength of fabric is not changed with the application of melamine resins. Standard cotton and rayon finishing equipment may be used for their application. A 2- or 3-bowl pad mangle, a pin tenter, and a washer are all that are required. Curing at a temperature of 290° to 310° F. has no effect on the strength of the fabric, Dr. Lynn stated.

QUICK SCOURING. In contrast with kier or jig scouring of fabrics, which requires from twelve to twenty hours, steamer scouring will prepare any type of cloth satisfactorily in an hour or less and the cloth may then be bleached by any of the conventional bleaching processes or sent to the dyehouse, according to R. L. Carr, The Mathieson Alkali Works. This discovery was made during the development of the new Mathieson steamer, which can be used for any hot-bleaching process as well as for scouring. The procedure is the same for scouring as for hot bleaching, the only variations are in the solutions used.

YARN FROM ROVING. Extremely strong yarn can be made directly from roving by a process involving the addition of a resin, stretching, compacting, and setting, according to H. M. Chase, Riverside & Dan River Cotton Mills. Such a yarn of about 1.5 count will have a strength of almost 24 lb. which can be compared to slightly over 16 lb. for a comparable conventional tire cord. An article on this appears elsewhere in this issue.

Piedmont AATCC Meets

The Piedmont Section of the American Association of Textile Chemists & Colorists held its fall meeting, Nov. 3, 1944, in Charlotte, N. C. At this meeting, with an attendance of nearly 250, officers were elected for the coming year. They are as follows: Sydney M. Cone, Proximity Print Works, Greensboro, N. C., chairman; Leland G. Atkins, Southern Dyestuff Corp., Charlotte, N. C., vice-chairman; John B. Neely, Burlington Mills Corp., Burlington, N. C., secretary; Wyss L. Barker, National Anilin Division, Allied Chemical & Dye Corp., Charlotte, N. C., treasurer; Henry B. Dixon, May, McEwen, Kaiser Co., Burlington, N. C., councilor; S. L. Hayes, Ciba Co., Charlotte, N. C., councilor; Luther J. McGinty, Nyanza Color & Chemical Co., Charlotte, N. C.; Ernest Caswell, Cloverdale Dye Works, Highpoint, N. C.; Roy J. Beauregard, Fair Forest Finishing Co., Fair Forest, S. C.; James T. McGregor, E. I. duPont de Nemours & Co., Greensboro, N. C. comprise the sectional committee.

C. W. Bendigo Speaks at Aridye Course

C. W. Bendigo, assistant editor of TEXTILE WORLD, spoke on the manufacture of cotton and rayon yarns and fabrics, Nov. 6, at the second session of the textile orientation course recently inaugurated by Aridye Corp., Fair Lawn, N. J. for its employees. This course consists of a series of 12 lectures, demonstrations, discussions, and motion pictures designed to provide a basic understanding of the methods employed in manufacturing, printing, dyeing, and finishing textiles. Textile men who are assisting in conducting the course are Milton Emerson, of United Piece Dye Works; Kenneth Barnard, of Pacific Mills, and R. J. Muller, of Paterson Vocational School. The course is under the direction of Winn W. Chase, formerly executive editor of TEXTILE WORLD, and now director of market research for Aridye, and Arthur Booth, chief of Aridye formulation laboratory.

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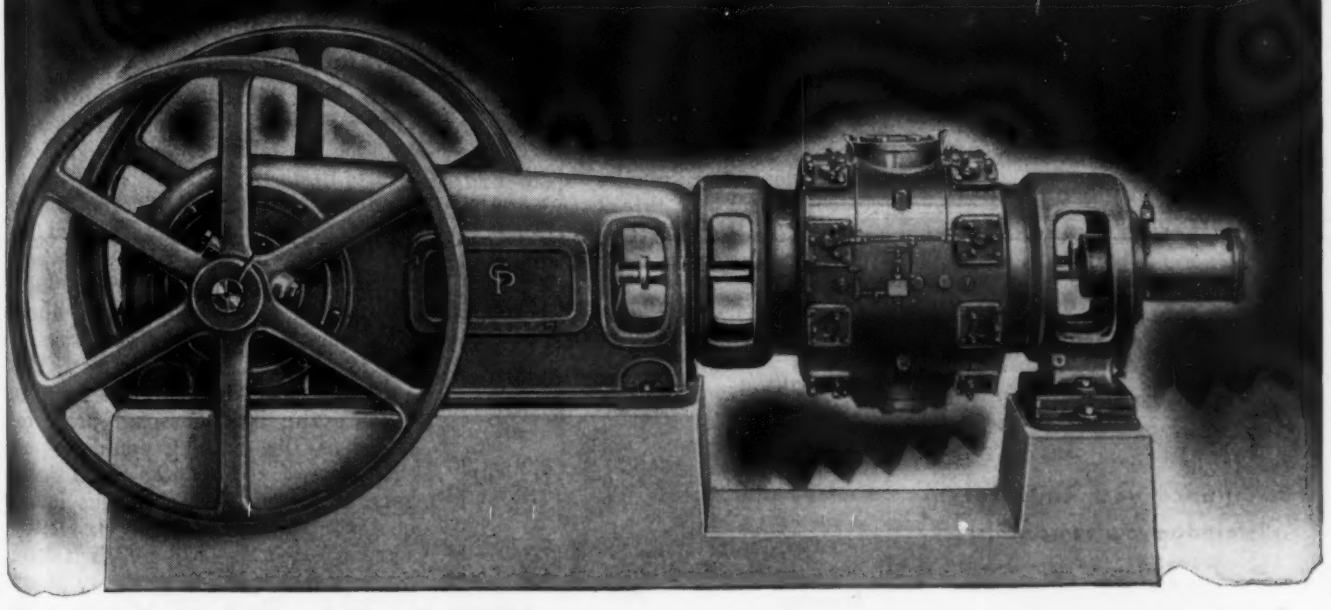

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Textile-Supply Needs for CHINA

HIGHLIGHTS: UNRRA Gets $172,000,000 Estimate from Chinese Mission —Textile Famine in Southeast Asia Predicted Through 1948—Four Constructions of Cotton Fabric Sought.

WASHINGTON, D. C.

THE MOST IMPORTANT tip-off so far of the overall textile demands which will be made on the United Nations Relief & Rehabilitation Administration is the unexpectedly heavy item allocated to that international body by China's program, the draft of which has been submitted by the Chinese Mission.

UNRRA's Supply Board is now studying the Chinese report, but only as a preliminary to fitting it into the global program including all of Southeast Asia. At the same time it is entirely possible that between now and the latter part of 1945, when China's program would get into the action stage, the estimate of requirements might increase substantially, with a corresponding increase in the share allocated to UNRRA.

Of China's total estimated needs for relief and rehabilitation UNRRA is asked to shoulder 37% which adds up to four million metric tons* of supplies of all kinds with a valuation of $945,000,000. Cotton cloth, raw cotton, cotton thread, together with various items of machinery needed to restore China's industry, accounts for 165,427 metric tons at a cost of $172,916,671. Specifically, it represents 10% of China's raw cotton needs for relief and rehabilitation, 10% of cotton cloth needs, and 40% of requirements for spindles, spare parts, sewing machines, thread, and needles. The breakdown allotted to UNRRA is given in the following tabulation:

	Quantity (Metric tons)	*Costs (U. S. Currency)*
Raw cotton ...	21,331	$9,406,971
Cotton Cloth.	84,545	82,191,779
Spindles (400,000)	20,000	18,000,000
Spare Parts....	6,748	13,496,000
Sewing Machines	2,133	5,119,200
Thread	29,687	44,530,500
Needles	983	172,221
	165,427	$172,916,671

While UNRRA's schedule is based on 6-month periods running from a year to 18 months, there is no definite relationship between that period and the length of time during which relief will be needed, nor the time it will take to bring about rehabilitation. For example, a textile famine in Southeast Asia has been predicted through 1948. One effect of the heavy requirements from China has been accentuation of the concern over budget limitations currently placed on UNRRA.

From the standpoint of the relief and rehabilitation program in China, the big need will be for *cotton* clothing. Before the war, China was almost self-sufficient in raw cotton, cotton yarn and cotton fabrics. Prewar raw-cotton production in China was estimated to be 10,416,000 quintals† in 1936. At that time there were approximately 5,100,000 spindles yielding an annual production of 2,242,000 bales (400 lb. each) of cotton yarn on the average. About 94% of the spindles were in what is now Occupied China.

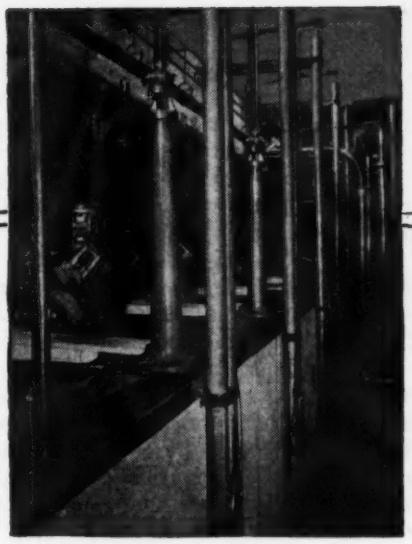
The Chinese report estimates that, as a result of the war, 1,300,000 spindles have been damaged and probably 700,000 more will be lost before the end of the war, making a total of about 2,000,000 spindles. This would leave 3,000,000 spindles in all China. In the 18 months tentatively allowed for UNRRA's rehabilitation, China wants at least 1,000,000 spindles installed in liberated areas (40% from UNRRA). If 20s yarn was spun, resulting production would be 1,860,000 bales of 45,200,000 pieces of cloth of 40 yd. each, which when distributed to 450,000,000 persons would amount to only about 6 yd. per person for the year, according to official Chinese figures. This amount is not sufficient, the more so because the lack of spare parts for many of the existing spindles puts them out of use. There is no assurance at present that even this inadequate amount can be attained. Hence, some 6,748 tons of spare parts have been estimated as necessary from UNRRA. These will help to avoid bottlenecks by allowing spindles remaining intact to be set in full operation.

Four kinds of cotton cloth are specified by the Chinese for their relief and rehabilitation purposes:

1. Printed cotton shirtings and sheetings—4.44 yd., 36 in., 74x66s; using 32s yarn; 40 yd. pieces.
2. Cotton sheeting—3.33 yd., 36

* Metric ton equals 2,204.6 lbs. or 1.1023 short tons, or 0.9842 long tons.

† Quintal equals 220.46 lb.



TELLURIUM LEAD DATA SHEET

SUBJECT:

Temperature Change in Acid Equipment

The problem: Many industrial processes involve frequent and rapid changes in temperature. These heat changes naturally cause considerable expansion and contraction in a metal lining. Since tanks must be leakproof and no allowance can be made for expansion in the plane of the lining, a certain amount of warping or bending movement, such as buckling, is to be expected. However, in successive operations, if a lining warps or bends again and again at the same point, it may eventually fail by cracking.

This service condition is frequently encountered in tanks used for "cutting" sulfuric acid. As water is added to the raw acid, the temperature rises sharply and then falls again. This cycle is repeated over and over and is accompanied by repeated expansion and contraction of the tank lining.

How it has been met: In our files are a number of statements from users to the effect that Tellurium Lead has given superior service under such conditions.

One user reports: "We recently made a check-up on our large sulfuric acid mixing tank lined with your 10 lb. Tellurium Lead. The lead was found to be very smooth and uniform with no signs of buckling, although this tank is used for mixing raw acid to lower specific gravities, which creates heat, which in turn steps up expansion and contraction in the lead."

Another writes: "We used Tellurium Lead to line a tank used for cutting 1.835 (sp.gr.) acid to battery strength, an exceptionally tough service at best. A considerable amount of heat is generated. This operation has been repeated daily for nearly three years and to date no leakage has been experienced. The lining is as good as the day installed."

Why does Tellurium Lead give longer service? Undoubtedly one reason is its ability to work-harden. When Tellurium Lead is stressed, it increases its tensile strength, becomes tougher and more resistant to deformation than before. Thus movements, such as the buckling of a tank lining, actually toughen the metal at the point of deformation, with the result that subsequent expansion is relieved by movement at other points.

A laboratory demonstration of Tellurium Lead's capacity to work-harden is shown in the photos above. Sections of Tellurium Lead pipe (top) and pipe made from lead without tellurium (bottom) were similarly stressed by stamping and then drawn out at equal rates in a tensile testing machine. The Tellurium Lead was strengthened by the stress while the lead without tellurium was weakened and fractured.

TELLURIUM LEAD

What it is: Tellurium Lead of our manufacture is time-tested St. Joe chemical lead alloyed with a small quantity of tellurium. It gives the advantages of this well-known chemical lead plus important new ones.

Available forms: Tellurium Lead is available in sheet or pipe form or fabricated in coils for heating and cooling purposes.

For further information or advice regarding the use of Tellurium Lead, write:

NATIONAL LEAD COMPANY—New York 6, Baltimore 3, Buffalo 3, Chicago 80, Cincinnati 3, Cleveland 13, St. Louis 1; National-Boston Lead Co., Boston 6; John T. Lewis & Bros. Co., Philadelphia 7; National Lead & Oil Co. of Penna., Pittsburgh 12; Georgia Lead Works, Atlanta; American Lead Corp., Indianapolis 6; Master Metals, Inc., Cleveland 16; Morris P. Kirk & Son, Inc., Los Angeles, Calif.; The Canada Metal Co., Ltd., Toronto, Montreal, Winnipeg, Vancouver.

OTHER TELLURIUM LEAD ADVANTAGES

In addition to its capacity to work-harden, Tellurium Lead has shown in many cases an improved resistance to corrosion at elevated temperatures as well as greater resistance to failures brought about by vibration or by stress-corrosion.

Higher corrosion resistance at elevated temperatures

Shown by the flash test. Here strips of Tellurium Lead and lead without tellurium were immersed in 96% sulfuric acid at 518° F. for three minutes. The lead without tellurium (bottom) lost 5.11% of its weight due to corrosion while the weight loss of the Tellurium Lead (top) was only 0.97%.

Improved vibration resistance:

Demonstrated by laboratory testing machines in which test specimens are subjected to rapidly repeated stresses. In these tests which simulate vibration, Tellurium Lead was found to have a higher endurance limit, nearly twice the load being required to fracture it than lead without tellurium.

Improved resistance to corrosion-fatigue: The corrosion of linings, pipes and coils is frequently accelerated by mechanical stress. The corrosive action is particularly severe when the stress is dynamic. Apparatus subject to vibration furnishes a good example. It has been found that Tellurium Lead's better endurance under vibration, as well as its improved resistance to acid attack, makes it less subject to such corrosion-fatigue failures.

Many uses: Tellurium Lead is extensively used in handling sulfuric acid, sulfates, phosphoric and chromic acids, pickling, electroplating and other corrosive solutions. It is employed in chlorinations, reaction chamber processes, reductions and sulfonations. Typical applications include agitators, aprons, drums, ducts, fans, flooring, heat exchangers, heating and cooling coils, kettles, pans, stills, table tops, tanks and vats.

Working properties: Tellurium Lead may be bent, seamed, flanged and burned in the same manner as ordinary lead.

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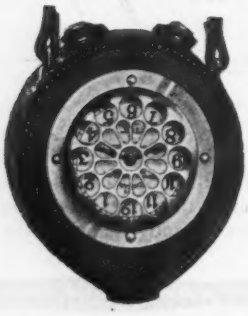

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in., 64x64s; 22s yarn; 40 yd. pieces.

3. Cotton shirtings—2.84 yd., 36 in., 56x52s; 16s yarn; 40 yd pieces.

4. Drills and jeans—3.33 yd, 29 in., 90x64s; 22s yarn; 40 yd. pieces.

Raw cotton is required for relief needs for padding of clothing, for blanket padding, for hand-spinning and for manufacture of cotton cloth by mills. (During five prewar years, 1932–36, Chinese cotton production was distributed as follows: mill consumption 54%, hand-spinning 12%, padding 29%, and export 5%.) Of the 21,331 metric tons of raw cotton requested from UNRRA, 70% should be middling with a staple of $\frac{7}{8}$ in., and 30% should be middling with a staple of 1 in., according to the Chinese Mission.

In order to get the imported cloth made into garments as soon as possible, a reasonable number of hand-operated sewing machines have been requested along with a supply of needles and thread.

The Chinese requests for industrial rehabilitation include a list of equipment for cotton mills made up of cotton-spinning machinery, card accessories, roller-covering apparatus, and testing-room requirements. As an example, the cotton-spinning machinery requirements call for 1500 revolving flat cards from UNRRA out of a total need for 3800; 400 long-draft roving frames, 114 spindles each, out of a total of 1,000 requested; 1000 ring-spinning frames, 400 spindles each, out of a total of 2500.

Testing NEW FINISHES Discussed at D-13 Meeting

WIDE-SPREAD INTEREST in the new finishes developed just prior to war and also to meet military requirements led Committee D-13 of the American Society for Testing Materials to devote the General Session of its Fall meeting at the Park Central Hotel, New York, October 18 to 20, to a symposium during which the speakers outlined the physical and chemical tests which would determine whether or not the new types of finishes are satisfactory for the purposes intended. It was realized that in addition to the immediate interest involved in military fabrics, there is an important post-war implication in this subject.

Another feature of the Committee D-13 meeting was the presentation at the dinner, by Dr. Harold De Witt Smith, of A. M. Tenney Associates, of his Edgar Marburg Lecture, "Textile Fibers—An Engineering Approach to an Understanding of Their Properties and Utilization," which he first delivered at the annual meeting of the A. S. T. M. last June. The request for its repetition came from many who heard it then, as well as many who had been unable to attend that meeting.

The general Paper Session was opened by Douglas G. Woolf, chairman of the Sub-committee on Papers and Publicity, who introduced J. Robert Bonnar, acting chairman of the Sub-committee on Bleaching, Dyeing and Finishing. Mr. Bonnar presented the speakers who included: Dr. Louis C. Barail, head of the bacteriological department, United States Testing Co.; Werner von Bergen, director of research and control laboratory, Forstmann Woolen Co.; and J. B. Goldberg, technician of J. P. Stevens & Co.

Dr. Barail, in his paper "A Suggested Method for the Thorough Testing of Antiseptic Fabrics," pointed out that the interest of manufacturers of knitted and woven fabrics in antiseptics capable of rendering these fabrics permanently bacterio-static and germicidal has been greatly increased during the last two years.

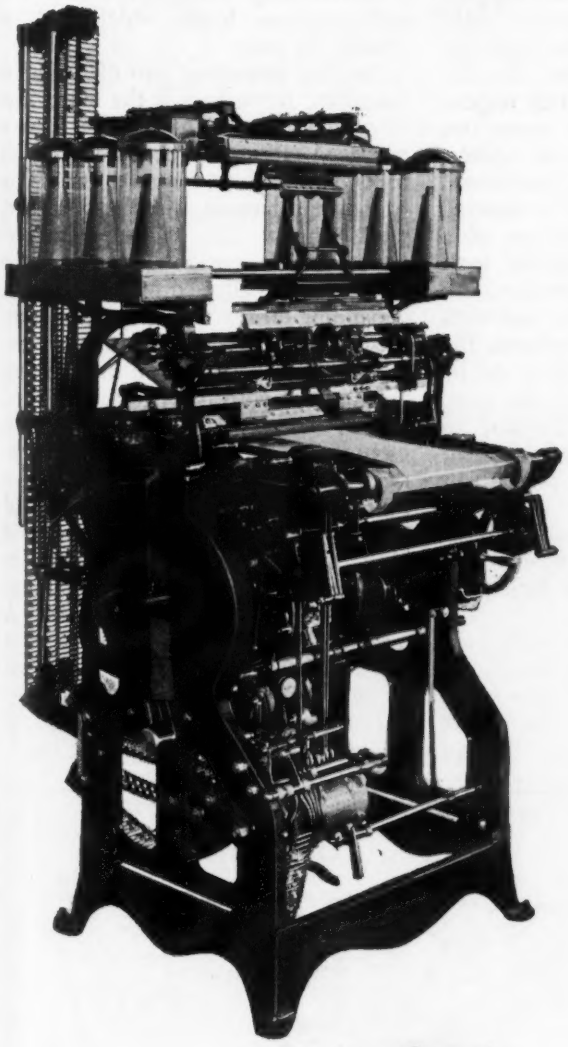
Mr. von Bergen's paper on "Factors Influencing the Breaking Strength of Army and Navy Fabrics," covered work done on two fabrics, the Army 18-oz. worsted serge, and the Navy 16-oz. woolen melton. The investigations show that there are three primary factors which influence the finished piece strength level: the choice of the wool, the dyeing process, and the yarn count.

Mr. Goldberg's challenging paper entitled "Tomorrow's Textiles—Yesterday's Test Methods," started with the assumption that we are going to see many of the much-discussed new fibers and fabrics and finishes produced commercially before too many years. But, he added, it seems to him that we should stop dreaming about these miracles of the future until such time as technical people can consider themselves up-to-date on fibers, fabrics and finishes that are in use today.

In his Marburg Lecture, Dr. Smith pointed out that the advent of manufactured fibers and their increasing variety and amount make it essential to transform the basis of our thinking about the utilization of textile fibers from that of a practical art to that of an engineering science.

"WHEN IT'S OVER, OVER THERE"

. . . here's a machine that will be a must in the progressive hosiery mills of the land. It takes extreme circumstances to prove quality. During these days of pressure when every minute of man-time and machine-time became precious, this



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Loomfixers' MANUAL

RAYON AND SILK SECTION

—Chap. IX (Cont.)

TAKE-UP MOTION

By H. E. Wenrich

INTERMEDIATE GEARS are keyed to the spur pinions which, in turn, are free to revolve upon the stud. When excessive play is discovered at this point the pinion will most likely need rebushing or replacement. Attention must also be given to the stud, for it is one of the first places to look for trouble when the cloth fails to weave-up correctly; and, this happens suddenly, resulting in heavy, tight marks. Lack of oil on the stud and pinion gear bushing, causing the pinion to freeze fast, is frequently responsible for this trouble. To repair this defect quickly, secure a new replacement, complete, from the stock room.

The defective parts can be repaired and assembled for further use at a more opportune time. Should such repairing be up to the loomfixer, the gear hub is set on top of vise jaws with the stud hanging down between the jaws. Tapping forcibly with a stubby drift and hammer will free the stud. When removed, smooth the stud to correct diameter so it can be reused. The surface inside the spur pinion will be filled with miniature cuts and ridges. These should be smoothed off with a round file. The repaired job is then kept on hand for future replacement.

Sometimes it is advantageous to tack a strip of heavy paper to the breast beam in such a position that the paper will hide completely from the center weaving aisle all take-up gears. A strip of paper approximately 16 in. by 30 in. will answer the purpose. The paper will prevent much yarn from tangling with the gears.

Another method of preventing waste accumulations around take-up pinions and gears is to bolt a discarded harness wire to one of the gears or to the take-up stand. The wire is bent so that waste ravelings will wind around the wire to form hanks which can be readily cut away.

Another important part of the take-up, often overlooked, is the cloth friction mechanism. This friction device is placed either on the bottom cloth roller or on the take-up drum. The friction mechanism, in either instance, works upon the same principle; namely, when tension is removed, the friction gear is allowed to move or rest, depending on the type employed. But, the cloth roller can be removed or unwound independently of the take-up gears. After correct tension is applied the mechanism can be locked in place by means of a button and pin arrangement that lock the handwheel to a notched flange. On some types of mechanisms the iron friction disc and gear, Fig. RS 50, is keyed to the take-up drum shaft. A leather disk separates the gear and the iron friction disk. A notched flange is then placed next to the iron disk and pressure then applied by the handwheel.

Friction is adjusted by pulling out the pin button mounted on the hand-

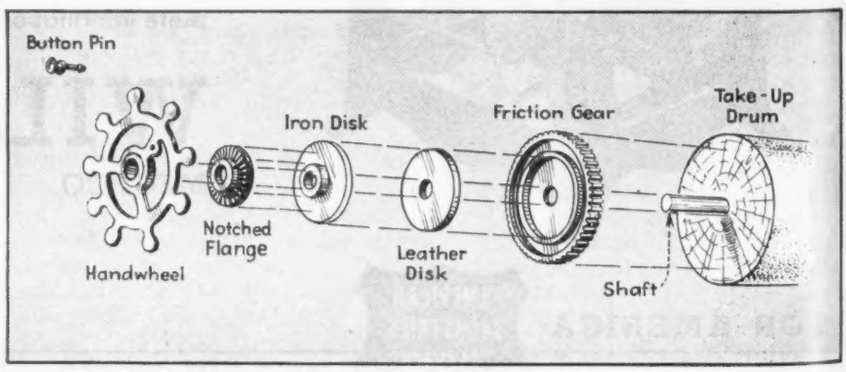
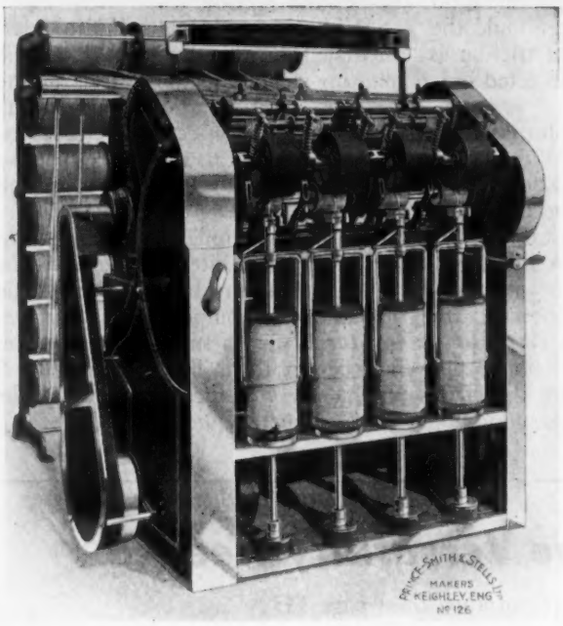


Fig. RS 50. This type of friction device, employing a leather disk, is frequently attached to the take-up drum.

WORSTED



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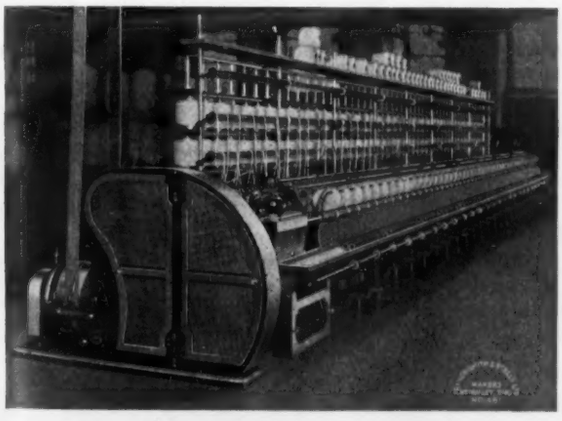

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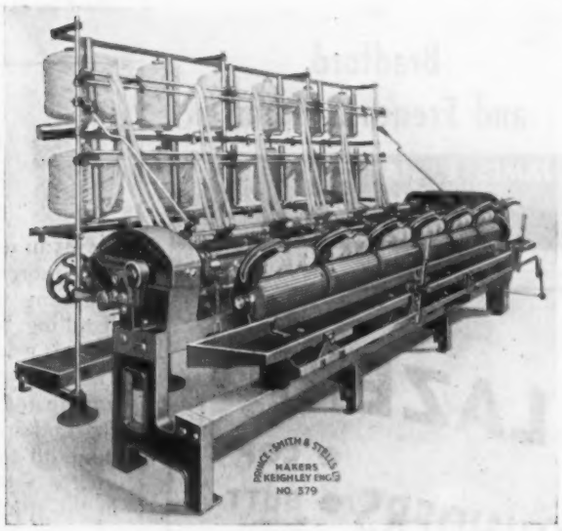

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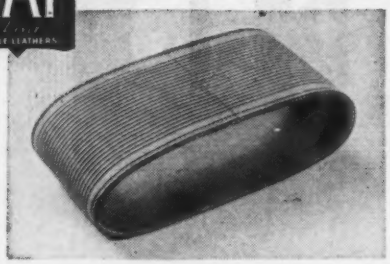

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wheel. This action disengages the pin from the notched flange. The handwheel can then be turned on the shaft clockwise or counter-clockwise to lessen or to tighten the friction take-up. When the friction is excessive the cloth roller can be turned back.

Purpose of the cloth roller is not to pull the cloth down and around the take-up drum, but is to merely wind the woven cloth on a roll. Should the cloth slip backwards when friction is loose, attention must be directed only to the pressure roller.

Excessive friction often breaks teeth on the notched flange. When many of these teeth are found to be missing, it is a wise plan to remove the flange and replace it with a perfect one. Also, when the pin, or the pin housing is broken, repairs should be made as soon as permissible. Otherwise the friction will not function correctly.

With take-ups where friction is supplied by means of a chain, the chain must be kept in a semi-loose condition at all times. Strange as it seems, barre can be, and often is, traced directly to improper clothroll friction adjustments.

Should oil work into the leather disk it can be removed and cleaned. At the same time clean out the friction gear housing with gasoline, then paint both sides of the leather disk with stove polish and replace.

With some loom types the intermediate gear is placed next to the take-up stand; the top gear is in the outside position. When replacing gears of this type, care must be taken when tapping gears into place that the gear rims do not touch each other and bind.

On many similar types of looms when removing intermediate gears, the top gears must first be removed. Should a section be composed of a full set, fixers will find a small top-gear puller a necessary tool. Top gears driven off frequently will break or crack at the hubs when they are driven off.

Machine Versatility Needed

(Continued from page 143)

ments in drafting, not only for cotton, but more especially for synthetics. Spinning units should be capable of handling both types of work within a fairly wide range of staple lengths. Higher and better drafting should be anticipated so that one-process roving and spinning can handle all medium to fine counts. Other developments should include improvement in the spindle for larger packages, use of paper tubes for spinning, increased use of anti-friction bearings, and designs to achieve a reduction in cleaning costs.

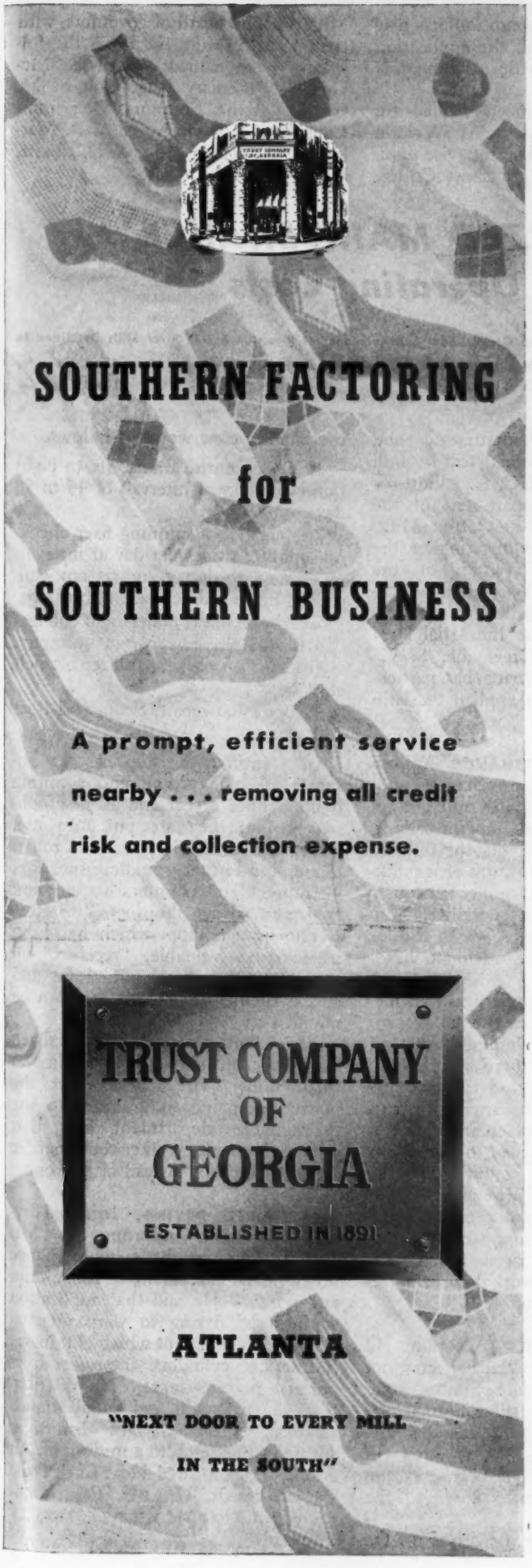
Trends in postwar cotton twisters will be directed toward optimum package size, higher speeds where power costs permit, cleaner and heavier design, and better-built bobbins. A new development embodying "2-for-1" twisting will probably be put on the market after the war.

LOOM REFINEMENTS. Loom design in the postwar era will be characterized by refinements. More attention is being paid to smoothness of operation through use of better designs, better machine work, and better balancing.

The present high speeds will be increased, or larger filling packages will be used. Improvements in let-off, especially for use with synthetics, will be featured.

Other general improvements or developments anticipated are improvements in vacuum stripping, the use of hydraulic couplings to obtain variable

Fig. 2. Attending the annual STA meeting last month were (l. to r.): Dean Malcolm E. Campbell, Dean Emeritus Thomas Nelson, and Elliot B. Grover, all of N. C. State Textile School; Marshall Dilling, executive secretary of the association; A. H. Grimshaw and G. H. Dunlap, also of N. C. State Textile School.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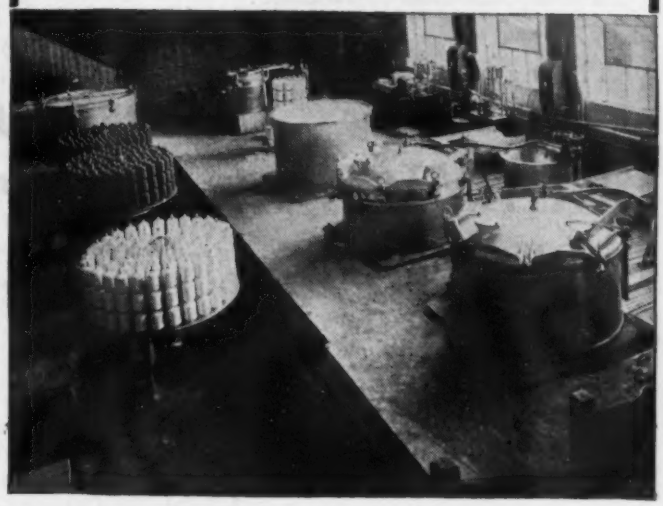

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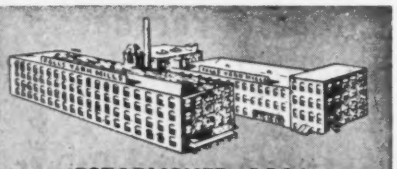

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NEW OFFICERS. Officers named for the STA were president, M. Weldon Rogers, Jackson Mills; and vice-president, B. M. Bowen, Salisbury Cotton Mill. For the board of governors, with their terms expiring in 1947, the following were named: Virgil E. McDowell, Rosemary Mfg. Co.; S. M. Cauble, Acme Spinning Co.; John Caughman, Spartan Mills; A. R. Marley, Erwin Cotton Mills; A. D. Elliott, Pacific Mills.

SPECIALIZED MAINTENANCE
Lowers Operating Costs

HIGHLIGHTS: Specialized Crews Under Superintendent at Riverside & Dan River Mills Described to STA Master Mechanics—Definite Schedule Followed—C. A. French Advocates Direct-Fired Heat for Drying Textiles.

SPECIALIZED OVERHAULING and maintenance lowers textile mill operating costs, said C. C. Elliott, of the maintenance department of the Riverside & Dan River Cotton Mills, at the October 25th meeting of the master mechanics division of the Southern Textile Association, Charlotte, N. C. At the same meeting, C. A. French, of the Industrial Heat Engineering Co., Greenville, S. C., said that infra-red drying has particular advantages when applied to slashing.

SPECIALIZED MAINTENANCE. According to Mr. Elliott, overhauling and maintenance jobs at his mill are set up under a special superintendent, who works directly under the mill superintendent. Lubrication of machinery also is included under this new department, since a specialized program of maintenance would be of little use without an adequate lubrication system.

This organization of specialized mechanical work relieves the production supervisor of much responsibility and allows him to give more attention to production, quality, and employee relations. Because jobs are highly specialized, the cost of maintenance is reduced, the efficiency of the specialists increased, and the condition of the machinery greatly improved. Most of the maintenance work, except emergency repairing, is done on the first shift; and it has been found that emergency repair work has been reduced to a minimum.

DEFINITE SCHEDULE. According to the program, a specialized crew of overhaulers and spindle plumbers completely services each spinning machine once every twelve months on a prearranged schedule. One crew of specialized steelroll cleaners works on a schedule six months ahead of the overhaulers.

In the spinning department, the overhauling crew works as follows:

1. Check entire frame, six to eight frames per day at intervals of 45 to 50 days.
2. A first-class spinning fixer checks one spinner's sides per day at intervals of 90 days to detect and fix any conditions that would cause end breakage.
3. A specialized pulley man changes and repairs all pulley when necessary, aligns belts on pulleys, and repairs belt shippers.
4. Belt men repair, clean, and treat belts.

In a specialized shop, a crew inspects all old carding and spinning bobbins once a year and all new bobbins before they are put into use. Other specialized shops are the roller, binder and leather, spindle inspection, instrument and counter, harness and reed, and salvage shops.

The salvage shop, which has been particularly valuable, receives all broken or worn parts. It cleans and checks them so that parts that can be salvaged are repaired.

Mr. Elliott stated that specialized maintenance could easily be applied to small mills. He believes that the master mechanic could head up the maintenance department and that each maintenance worker could handle a number of jobs instead of just one.

DIRECT-FIRED DRYING. Infra-red drying equipment, according to Mr. French, requires little maintenance other than replacement of refractories and nozzles. He said that application of intra-red drying to warp preparation is a development which eliminates the slasher cylinders, increases dryer output, permits more even distribution of size to the individual strands of yarn, eliminates yarn distortion, and reduces stretch to a minimum. An article, "Direct-Fired Heat for Textile Drying Needs," by Mr. French appeared in October issue of TEXTILE WORLD.

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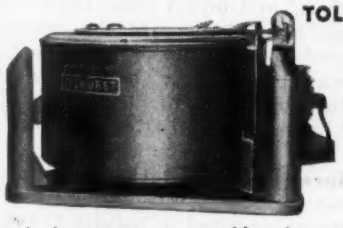

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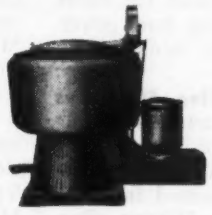

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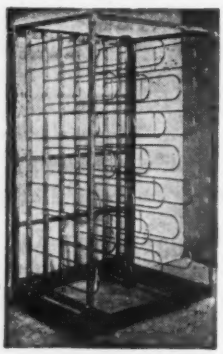

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MANUFACTURERS' BULLETINS

READERS interested in literature reviewed on this page may secure copies with time-saving coupon on page 222. Mark what you want on it and send it to Textile World, 330 West 42nd St., New York 18, N. Y., being sure to give your name and company connections.

1. Technical bulletin No. 760, "Package Dyeing with Vat Colors," published by the Calco Chemical Division, American Cyanamid Co., contains much helpful information for those working with vat colors. Commercial formulas for package dyeing are given; photographs illustrate cross-sectional views of samples dyed, showing penetration and levelness of dyeing. This article originally appeared in the April issue of TEXTILE WORLD.

2. Selection of equipment for laboratory air conditioning systems is discussed in the September issue of *Parks' Parables*, published by Parks-Cramer Co. The article points out various tolerances which must be maintained in air conditioning systems, the importance of indoor humidity and many other items that must be considered when installing laboratory air conditioning.

3. "Condensate Control in Textile Mills," is the title of a reprint, No. 33, being offered by Cochrane Corp. This article originally appeared in the July issue of TEXTILE WORLD. Covered are high-pressure condensate returns which are used to cut fuel costs and to increase boiler capacity in marginal plants.

4. "Caterpillar Diesel Engines for Dependable Power," is the title of a booklet being offered by Caterpillar Tractor Co. This booklet illustrates and describes many uses which diesel engines are serving on the home front. It covers the entire range of applications varying from powering cotton gins to lighting municipalities.

5. "Mechanical Handling Eliminates Labor," is the title of an article appearing in the September issue of *The Swirling Column*, published by American Monorail Co. The article, reprinted from the August issue of TEXTILE WORLD, illustrates and describes the handling of the entire output of a mill overhead by automatic and semi-automatic operation of trucks and cars.

6. Electronic heating is discussed in two folders being offered by Federal Telephone and Radio Corp., in which the Megatherm is covered. The Megatherm is available in units ranging from 3 kw. to 25 kw. output.

7. Power plant equipment such as separators, strainers, and desuperheaters are covered in a catalog issued by Dri-Steam Products, Inc. Each of the items covered are illustrated and dimensions and working pressures given.

8. "Facts and Figures About Atlanta," is the title of a small booklet being issued by The Industrial Bureau of the Atlanta Chamber of Commerce. This booklet covers transportation facilities offered by the city, communication facilities, electric power, fuel, water, education and practically all other factors which should be considered in determining a plant location.

9. Powder metallurgy is discussed in a new catalog announced by Amplex Div., Chrysler Corp. The 168-page catalog is designed to provide industry with a complete knowledge of the wide variety of powder metal bearings and parts now being produced by Chrysler under the trade name of Oilite. Portions of the catalog are devoted to listing various sizes of self-lubricating, plain, flange bearings, and other items available. Another section is devoted to engineering data.

10. Speed recording tachometers and accessories for Reeves variable-speed control units are described in bulletin G-448 being offered by Reeves Pulley Co. The mechanical type of tachometer and the electric type of tachometer are discussed. Mounting diagrams are shown and installation is covered.

11. A magnetic separator, for use with various pieces of textile opening and cleaning equipment, is discussed in an 8-page bulletin being offered by Dings Magnetic Separator Co. This bulletin includes installation diagrams and photographs and describes the operation of the Dings vertical plate magnet and the Dings magnetic pulley.

12. Applications of Velon and Foamex are discussed in an 18-page booklet being offered by Firestone Industrial Products Co. This booklet covers many of the post-war applications for Velon in fabric form, for screens, for seats, and in braided form.

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Material should be of interest to all those interested in postwar opportunities.

13. "Polyethylene Resins," is the title of a 12-page booklet, issued by Plastics Division, Carbide & Carbon Chemicals Corp. Chemical structure, properties and various applications of polyethylene resins are covered. Textile men will be particularly interested in the weaving and knitting possibilities offered by monofilaments of polyethylene resins.

14. Use of stainless steel buckets on a conveyor installation in a hosiery plant is discussed in the October issue of *Electromet Review*, published by Electro Metallurgical Co. This article describes how stainless steel buckets are used in handling hosiery in the plant of the Gotham Silk Co.

15. All-steel industrial fluorescent fixtures are listed and described in catalog No. 281 being offered by Mitchell Mfg. Co. Complete data and information is given on 2-40 watt, 3-40 watt, and 2-100 watt models with steel reflectors.

16. Anti-rust protection is covered in a folder, issued by Truscon Laboratories, Inc. Bar-Ox Formula 97, a penetrating rust inhibitor, and Bar-Ox Inhibitor Steel Coating, a finish coat, are described and their applications discussed for prevention of rust in and about mills.

17. "Mobile Canteens," is the title of a catalog offered by S. Blickman, Inc. This catalog describes and illustrates eight basic models of mobile canteens for in-plant feeding. Some models of various capacities are said to be equipped to serve up to 450 persons.

18. Promotion work used by the American Viscose Corp. in various magazines has been collected and published in booklet form. It presents some of the more interesting jobs which rayon and Vinyon are doing today. The material is described as furnishing a clue to what may be expected in postwar textiles.

19. A guide to belt maintenance is being offered by Du-Grip Manufacturing Co. This booklet, titled, "Directions for Applying Du-Grip," discusses various types of belt oil or belt dressing and contains much information on belt care.

20. "Incentives for Supervisors and Executives," is the title of a booklet published by Albert Ramond and Associates, Inc. Bonuses and incentive plans for supervisors and plant executives are discussed in detail.

21. "Infra-red Reflectance in Textiles," is the title of bulletin No. 759, offered by Calco Chemical Division, American Cyanamid Co. This bulletin gives infra-red reflectance for textiles, particularly in relation to camouflage work. Analysis of textile camouflage specifications, tests, and photographic tests are contained.

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This mailing coupon is a convenient size to paste on a penny postcard. **Circle the numbers of the catalogs you want** which correspond to the numbers on the descriptive paragraphs. Fill out the coupon **legibly** and **completely.** Paste it on a postcard, or put it in an envelope if you prefer, and mail it to Textile World, 330 W. 42nd St., New York 18, N. Y.

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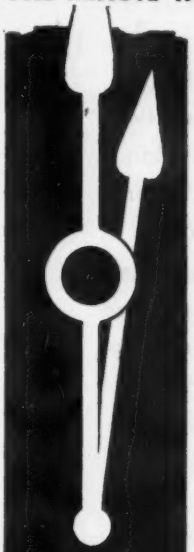

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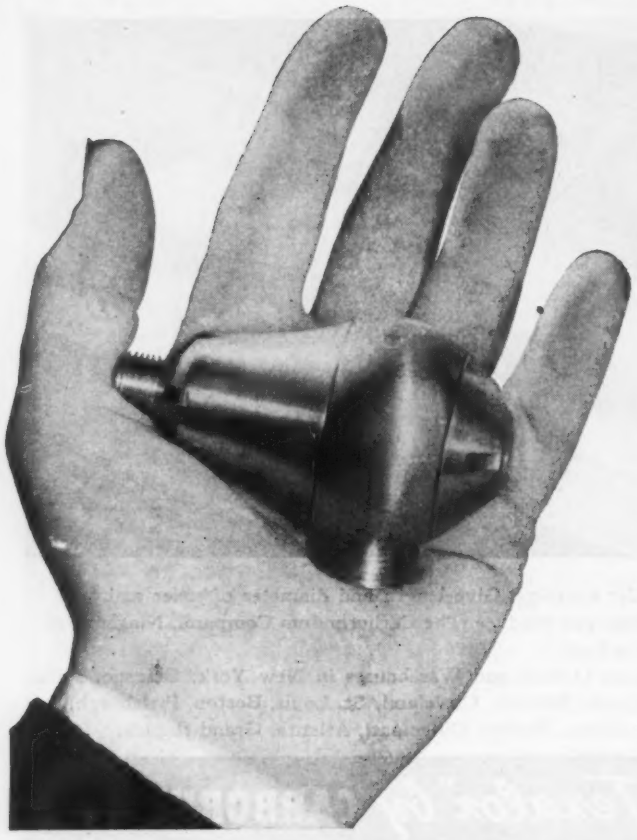

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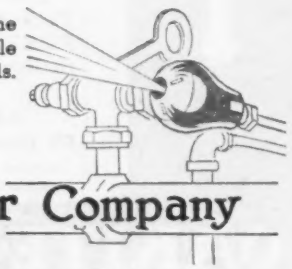
With air and water ports cleaned simultaneously by this simple, positive arrangement, quality and quantity of evaporation will continue after years of active work.

No piping changes. The Turbomatic interchangeable with earlier and other models.



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NEWS ABOUT Suppliers

Whitin Machine Works Whitinsville, Mass., has appointed Benjamin B. Peacock as southern agent in charge of the Atlanta territory with offices in Atlanta, Ga. Since the outbreak of War Mr. Peacock has been connected with the Textile Machinery Branch of WPB in Washington, having been Chief of the Cotton Yarn Machinery Section. Prior to his going to Washington Mr. Peacock was with Whitin's Charlotte office for two and a half years. Milton J. Bentley, who has been selling agent in the Atlanta territory for the last several years, will continue with Whitin in that capacity.

Dayton Rubber Mfg. Co., Dayton, Ohio, has added Emory L. Howell to its research and development staff at the Waynesville, N. C., plant which specializes in Dayton Thorobred loom supplies and Dayco roll coverings for the textile industry. Mr. Howell, a graduate of Clemson, was formerly assistant superintendent of Laurens Cotton Mills.

Abington Textile Machinery Works has purchased the former Arnold shoe plant at North Abington, Mass.

Borne Scrymser Co., New York, reports that Frederic L. Ekstrand, of Stafford Springs, Conn., has resumed his connection with its Textile Division. He recently received an honorable discharge after having served since November, 1942, with the Army Air Forces. As textile research engineer he will devote his efforts to fiber processing, and to product and process development.

EDWARD P. TAFT, formerly of Augusta, Ga., who has become associated with John A. McPherson Co., Greenville, S. C. For the last 25 years Mr. Taft was superintendent of the John P. King Mfg. Co., Augusta, Ga. He will act as textile consultant with the McPherson firm of industrial engineers, which specializes in textile, and pulp and paper plants.

Diamond Alkali Co., Pittsburgh, Pa., has purchased the Emeryville Chemical Co., San Francisco, Calif.

Quaker City Chemical Co. of Canada, Ltd., Hamilton,

PENNSYLVANIA SALT MFG. CO., Philadelphia, recently dedicated its new Whitemarsh Research Laboratories, as mentioned in these columns last month. Above are shown (left to right): Dr. S. C. Ogburn, Jr., manager of research and development and head of Whitemarsh Research Laboratories; Leonard T. Beale, president of the company, and C. F. Kettering of General Motors at the dedication exercises.

Symbols of Precision

● In the famous British 25 Pounder, as manufactured by Sorel Industries Limited of Quebec, Canada for the British and Canadian Armies, practically every bearing is a Bunting Cast Bronze Precision bearing, because great endurance, finest precision and silk-smooth operation are vital. For machines of war or peace there are no finer bearings than these.

Supplied in standard sizes by leading wholesalers Bunting Bronze Bearings are available from stock for all applications in industrial machinery and electric motors. Bunting Bronze Tubular and Solid Bars are machined on all surfaces. Write for catalog . . . The Bunting Brass & Bronze Company, Toledo 9, Ohio. Warehouses in Principal Cities.

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Incredibly accurate and rapid in fire the British 25 Pounder has so amazed the enemy that captured Germans could not believe it was hand-fed—they asked to see "your automatic artillery".

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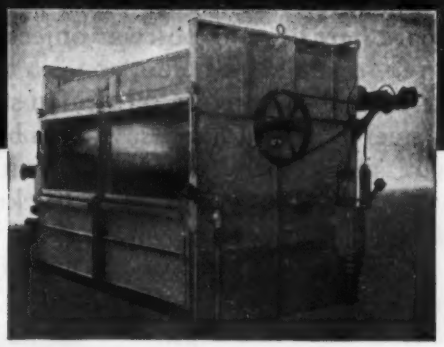

Promotes that wool like hand. Extra large drum type reel helps goods balloon, move around and change folds, while Multi-Grip partially knurled surface (Pat. Pend.) prevents slipping.

Wide adaptability and substantial savings in dyestuffs.

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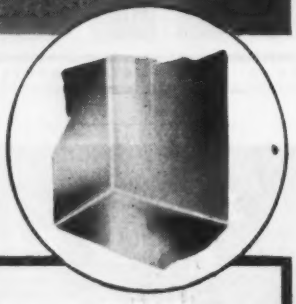

Round corners in Blickman dye box linings increase the strength of the box, make them easier to clean.

IF REDUCTION of labor cost — faster service to customers — an end to off color shades—and higher profit per dye run are part of your postwar objectives, plan for dyeing equipment you can clean quickly and completely. Blickman stainless steel dye box linings save man hours — you clean them thoroughly with a quick rinse. Round corners of Blickman dye box lining guarantee that there will be no residue of old dye to cause false shades. Boil outs are unnecessary. You produce more and higher quality work at less cost.

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Ontario, has appointed Alfred M. Leverett, of Drummondville, Quebec, as its sales representative in the Province of Quebec.

Steel Heddle Mfg. Co.'s Southern Shuttles Division, Greenville and Paris, S. C., has installed a large and modern department for the manufacture of fiber shuttles. As in the case of the wood shuttles, this company controls every operation, from the crude fiber and the wood to the finished shuttle. Conventional square shuttles are made as well as shuttles used in plush and velvet looms, with acute side wall angles, fiber covered.

Hercules Powder Co., Hopewell, Va., has work in progress on the expansion of its ethyl cellulose plant, which will involve a cost of $500,000 with equipment.

Minneapolis-Honeywell Regulator Co., and its division the **Brown Instrument Co.**, has appointed Dave W. Choate as industrial manager at Atlanta, Ga. He started with the Brown company in 1936 and has been in charge of its Milwaukee branch. He is succeeded at Milwaukee by W. S. Robards.

Link-Belt Co., Atlanta, Ga. plans remodeling its offices in the present building at 111 Murphy Ave. R. Kennon Perry, of Atlanta, is the architect.

Ansul Chemical Co., Marinette, Wis., reports that its owned and operated subsidiary, Dugas Engineering Corp., became the Dugan Division of the parent company as of Oct. 1.

Marlowe Van Loan Corp., High Point, N. C., was recently appointed distributor for Colgate-Palmolive-Peet textile processing products in the two Carolinas and part of Virginia.

Sipp-Eastwood Corp., Paterson, N. J.—William Toll, president, has just celebrated his 35th year as head of this company.

F. W. STURTEVANT, who has been appointed technical sales representative of the Latex and lotal department, Naugatuck Chemical Division, United States Rubber Co. He will also represent the rubber company's affiliate, Dispersions Process, Inc. His territory will include New York, Pennsylvania, New Jersey, Delaware, and Maryland, with headquarters at Naugatuck, Conn. Since joining Naugatuck Chemical in 1936, Mr. Sturtevant has been active in developments of Koloc, and in the production of textile products employing aqueous-dispersed rubber in their manufacture. He is a graduate of Lowell Textile Institute as a textile chemist, and spent several years on the editorial staff of TEXTILE WORLD.

PERKIN MEDAL AWARD—The American Section of the Society of Chemical Industry, of London, has elected Dr. Elmer K. Bolton, chemical director of E. I. du Pont de Nemours & Co., Wilmington, Del., to receive the Perkin Medal in recognition of his outstanding accomplishments in the field of industrial research. Presentation of the medal will be made at a dinner meeting of the society at the Commodore Hotel, New York, on Friday, Jan. 5, 1945. Dr. Bolton will be the 39th member of the group of distinguished chemists who have received this medal.

Giffels & Vallet, Inc., engineers and architects, Detroit, Mich., have recently opened an office in Mortgage Guarantee Bldg., Atlanta, Ga. E. Paul Hayes is now in charge, but will be succeeded around Jan. 1, by W. A. Jaeger, chief engineer, now located at Norfolk, Va.

The J. O. Ross Engineering Corp., New York, has opened a new branch office at 79 Milk St., Boston 9, Mass., in charge of F. W. Partsch, vice-president.

United States Testing Co., Inc., Hoboken, N. J., has appointed E. J. Donohoe as manager of its Philadelphia branch. Mr. Donohoe is a graduate of Lowell Textile School and has been manager of the company's New York office.

Elastic Stop Nut Corp., Newark, N. J., has added Davis Douglas to its sales staff to specialize in textile applications. He was formerly with Brown Instrument.

E. I. du Pont de Nemours & Co., Wilmington, Del., has appointed Charles M. Switzer, director of cellophane produc-

Always mistily sheer and charming, exquisitely soft and dainty—miles more wear—when Milady's hose and clothing fabrics are *DuraBeau* finished.

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Mfrs. of Textile Soaps, Softeners, Oils, Finishes
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NEWS ABOUT SUPPLIERS

tion since 1935, director of nylon production. J. F. McCune, superintendent of the cellophane plant at Clinton, Ia., succeeds Mr. Switzer as director of cellophane production, and F. W. Barkley, assistant superintendent at Clinton, replaces Mr. McCune as superintendent. DuPont has also appointed Dr. Samuel Lenher as assistant manager of its Chambers Works, Deepwater Point, N. J., succeeding R. J. Goodrich, who has been appointed works manager.

Onyx Oil & Chemical Co., Jersey City, N. J., has appointed F. Earl Schroeder as manager of its Chicago office which has been opened at 445 Lake Shore Drive. Mr. Schroeder has spent eight years in the Chicago territory and several years in the South for his company.

Glyco Products Co., Inc., Brooklyn, N. Y., has opened a plant and office in Mexico City. The Mexican company, known as Productos Quimicos Glyco, S. A., is located at Cipres Num. 355, Mexico D. F., and is under the direction of Dr. E. Rios and Dr. A. Graf, Mexican chemical engineers.

The Foxboro Co., Foxboro, Mass., has added Frank Renner to the staff of sales engineers covering the Southern California territory, with headquarters at 2307 East 8th St., Los Angeles. Robert Beers has joined the staff of Foxboro sales engineers attached to the New York office at 420 Lexington Ave.

Calgon, Inc., Hagan Corp. and **Hall Laboratories**, Pittsburgh, Pa., report the return to the textile and power field of Maj. W. D. "Doug" Smith, formerly with Calgon representatives, Eshelman & Potter, Birmingham and Charlotte, prior to entering army service two years ago. Maj. Smith, whose home city is Greenville, S. C., served in the Chemical Warfare Service. He will specialize on water problems.

H. R. DINGES, of The Mathieson Alkali Works, who was recently placed in charge of technical service on Textone applications in southern textile industries. He was transferred to the Charlotte, N. C., office in 1942 and will continue to work out of that office.

American Viscose Corp. has established a dye laboratory at its New York office to assist textile converters and finishers who are licensees under the "Crown" Tested Plan.

Comprehensive Fabrics, Inc., New York, have appointed C. D. Couch, Jr., to be merchandise manager in preparation for expanded postwar merchandising activity in goods made of Koroseal, the B. F. Goodrich synthetic.

Bakelite Corp., New York, will carry on the integrated sales activities of the new Plastics Group of Union Carbide & Carbon Corp. which brings together the products from various units of the corporation, including those marketed under the trade-marks "Bakelite," "Vinylite," "Vinylseal," "Halowax," "Zyrox," etc.

JOSEPH G. MAGRATH, who has been appointed manager of the Chicago district sales territory of American Machine & Metals, Inc., East Moline, Ill. His office is at 310 South Michigan Ave.

Pittsburgh Plate Glass Co., Pittsburgh, Pa., reports that H. B. Higgins, its president, has been elected president also of the Pittsburgh Corning Corp., replacing the late H. S. Wherrett. R. L. Clause, vice chairman of Pittsburgh Plate, was named vice president of Pittsburgh Corning, which is owned equally by the Corning Glass Co. and Pittsburgh Plate, and operates a plant at Port Alleghany, Pa., manufac-

DANA WARP MILLS

Westbrook, Maine

Cotton yarns, single and ply
Cotton warps, single and ply
Colored yarns and warps
Spun rayon—yarns and warps
Seamless grain bags.

THOS. WOLSTENHOLME SONS & Co. INC.

3300 Frankford Avenue
Philadelphia, Pa.

Yarns for All Purposes

French and English Spun Worsted
French Spun Zephyr
French Spun Merino

Representatives:—

Mr. Robert H. Perkins, 99 Chauncey St., Boston 11, Mass.
Mr. C. F. Peffer, The Merchandise Mart, Suite 1076, Chicago 54, Ill.
Mr. Arthur Bone, 4436 Worth St., Los Angeles 33, California

THE OLDEST AND LARGEST
MANUFACTURER OF
Ring Spinning and Twister Travelers

In the UNITED STATES

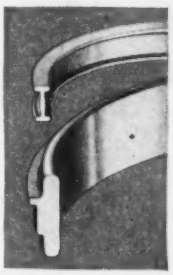
American • Hicks • Wilson
United States Standard
Wentworth Double Duty and Gravity Travelers

MAKE STRONGER YARN

National-Etartnep Finish
A New Chemical Treatment
Write Us

National Ring Traveler Company
354 Pine St., Pawtucket, R. I.
PHILIP C. WENTWORTH, *Treas.*
P.O. Box 1565, Providence, R. I., Charlotte, N. C.

"Our repair rings have paid handsome dividends"



Although classed as Repairs, rings not only restore production, but often enable machinery to EXCEED previous maximum output. If you have worn rings, let us help you decide whether to replace with standard styles, or to aim for greater-than-ever production with our Eadie speed rings.

WHITINSVILLE (MASS.)
SPINNING RING CO.
Makers of Spinning and Twister Rings since 1873
DIAMOND FINISH

For—Long Draft Spinning

NON-FLUID OIL is the ideal lubricant for rolls and saddles because it does not drip or leak. The effective lubrication it provides enables top and bottom rolls to maintain correct speed and produce even yarn.

Because NON-FLUID OIL stays in bearings it outlasts oil and does not get on top roll covers to blacken yarn.

Write for instructive bulletin

New York & New Jersey Lubricant Co.

***Main Office:* 292 Madison Ave., New York, 17, N. Y.**

Southern Agent, Falls L. Thomason, Charlotte, N. C.

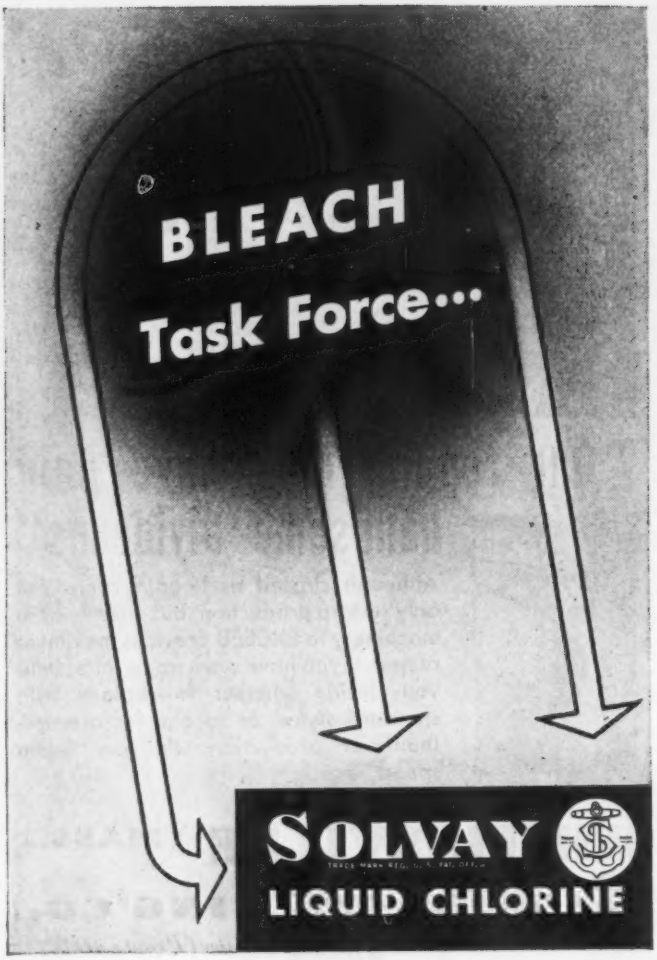
WAREHOUSES

Chicago, Ill. — Atlanta, Ga.
Providence, R. I. — Detroit, Mich. — Charlotte, N. C.
St. Louis, Mo. — Greenville, S. C.

TRADE MARK REGISTERED
NON-FLUID OIL
U.S. PAT OFFICE & FOREIGN COUNTRIES

MODERN TEXTILE LUBRICANT

Better Lubrication at Less Cost per Month



An important assignment of SOLVAY Liquid Chlorine in textile bleaching operation is that of safe-guarding fabrics against *uneven colors* and *spotty bleaching.*

Economical and versatile, SOLVAY Liquid Chlorine is an effective bleaching agent and water conditioner. It is recognized for its controlled quality, highest standards of purity, and dependable uniformity—your assurance of satisfaction and performance.

SOLVAY SALES CORPORATION

Alkalies and Chemical Products Manufactured by The Solvay Process Company

40 RECTOR STREET NEW YORK 6, N. Y.

BRANCH SALES OFFICES:

Boston	Cincinnati	New Orleans	Pittsburgh
Charlotte	Cleveland	New York	St. Louis
Chicago	Detroit	Philadelphia	Syracuse

turing specialty glass such as Foamglas for insulation and glass blocks. Pittsburgh Plate Glass Co. will erect a new paint plant on a 14-acre tract, at Springdale, Pa., a suburb of Pittsburgh. The company already operates paint factories at five other locations.

General Electric Co., Bloomfield, N. J.—George E. Simons has been appointed advertising and sales promotion manager of the General Electric Air Conditioning and Commercial Refrigeration Divisions.

Sun Oil Co., Philadelphia, Pa.—Dr. Edgar S. Ross has completed his assignment as Chief of the Lubricants Section, Aviation Division, Petroleum Administration for War, Washington, D. C., after serving for 15 months. He has returned to the Sun Oil Co., where he will devote his full time to the development of technical sales with the Industrial Products Department.

***PROCESSING OILS & CHEMICALS ASSOCIATION** held its annual meeting in New York, Oct. 17. Officers elected were Fred C. Scholler, president; Victor H. Berman, vice president; H. B. Swett secretary-treasurer. The new board of directors consists of F. C. Scholler (chairman), Ernest Nathan, L. L. Grombacher, L. E. Schroeder, H. B. Dohner, H. A. Harrison, G. A. Goulston, V. H. Berman, A. J. Royce, J. M. McChesney, C. M. Braham, D. S. Whiteman, P. E. Breer. This organization was originally formed in 1931 as the Sulphonated Oil Manufacturers Association, and in 1941 the corporate name was changed to broaden the scope of its work.*

Crane Co., Chicago, has appointed Lucien W. Moore as manager of its valve, fitting and pipe sales department. He was previously general purchasing agent of the company. He is succeeded as purchasing agent by Thomas J. Hanlon.

H. K. Porter Co., Inc., Pittsburgh, Pa., has appointed Victor Failmezger, previously application and field engineer for the company, to the position of sales manager of its subsidiary, Quimby Pump Co., of Newark and New Brunswick, N. J. Porter has also appointed Fred Grotts, president of its subsidiary, Fort Pitt Steel Casting Co., to a newly-created position, in addition to his present one, as director of research and metallurgy for all Porter plants.

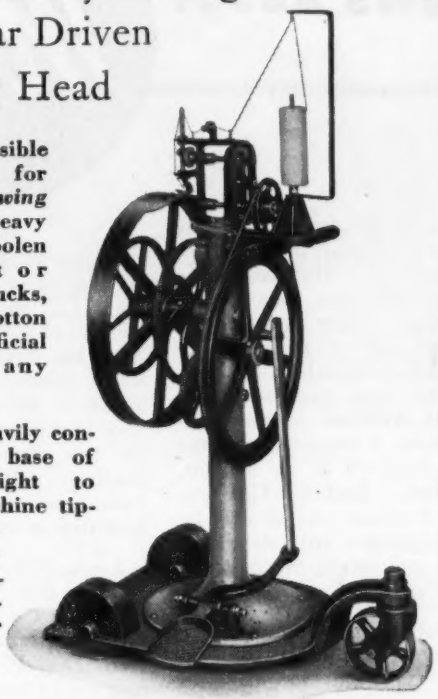
HERBERT HEESCH, who has been appointed by Hooker Electrochemical Co., Niagara Falls, N. Y. to its sales staff in northern New Jersey area.

Wickwire Spencer Steel Co., New York, has moved the general sales office of the Mechanical Specialties Division to Clinton, Mass., where the products of this division are manufactured. The mechanical specialties general sales office has been previously located at 500 Fifth Ave., New York, where a district sales office of this division will continue to be maintainecd. The products of the division include industrial wire cloth, metal conveyor belts, card and napper clothing, perforated metals and grilles.

Worthington Pump & Machinery Corp., Harrison, N. J., has appointed William J. Van Vleck as manager of its Atlanta Office, succeeding Edward Stauverman, who, after many years of association with Worthington, has resigned to engage in another line of business. Mr. Van Vleck entered Worthington's employ in 1924 and since 1938 he has been assistant manager of the Philadelphia district office.

J. H. JEWELL, who has been named manager of the Industry Departments of the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.

Improved Heavy Duty Foot Power Rotary Sewing Machine With Gear Driven Sewing Head



The best possible machine built for *heavy duty sewing* on light and heavy cotton and woolen goods, wet or dry, cotton ducks, woolen and cotton blankets, artificial leather or any heavy fabrics.

Machine is heavily constructed with base of sufficient weight to avoid the machine tipping, also machine cut gears throughout and rubber tired floor wheels.

DINSMORE MFG. CO.

See Also Textile World Year Book and Catalog

No. 5

SALEM, MASS.

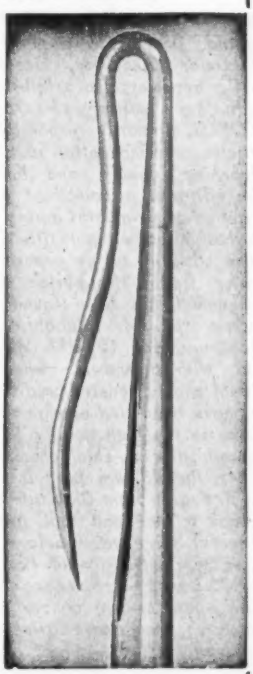
CHARLES COOPER CO., INC.

Benrington, Vermont

Manufacturers of

Quality LATCH and SPRING-BEARD

NEEDLES



also

Manufacturers of THE FAMOUS COOPER CIRCULAR SPRING-NEEDLE RIB KNITTING MACHINES

TO WIN QUICKLY AND COMPLETELY!

WE are concentrating all of our efforts — all our facilities — all our abilities — behind the well known gentleman whose likeness appears above. In doing so — we are also serving your best interests — even though we may temporarily be compelled to give you the impression that we are neglecting you. Our sole object is to help win as quickly and completely as possible. Meanwhile, we will help you users of Brinton Knitting Machines, to the best of our ability.

BRINTON

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3700 KENSINGTON AVE.

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BUY UNITED STATES WAR SAVINGS BONDS

WHITMAN YARNS

WORSTED · COTTON · SPUN RAYON

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1852-1944

During 92 years The William Whitman Company, Inc., and its predecessors have served the interests of important mills and users of yarns, seeking to establish for its customers a steady flow of dependable, quality yarns.

ARLINGTON MILLS
LAWRENCE, MASS.

Bradford Spun Worsted Yarns, Natural and Slub-dyed Colors and Mixes.

MONOMAC SPINNING CO.
LAWRENCE, MASS.

French-spun Worsted and Merino Yarns. Specialty Yarns—Rabbits Hair, Rayon, Acetate and Other Blend Yarns.

NONQUITT MILLS
NEW BEDFORD, MASS.

Cotton and Spun Rayon Yarns, Merino Blends, Specialty Rayon and Wool Mixtures.

WILLIAM WHITMAN COMPANY, INC.
SELLING AGENTS

BOSTON, 78 Chauncy St. — NEW YORK, 261 Fifth Ave.
PHILADELPHIA, 1600 Arch St. — CHARLOTTE, Commercial Bank Bldg.

NEWS ABOUT Men

Dr. L. D. Bryan has been elected president of the Holly Ridge Textile Mill, Inc., newly organized firm, which plans to erect a new sweater and hosiery mill at Holly Ridge, N. C. **L. E. Coleburn** has been named vice president, and **N. H. Modinos** secretary and treasurer. A finance committee composed of **J. D. Jenkins, William Kneller,** Coleburn and Modinos was named by stockholders to determine ways and means of constructing the plant.

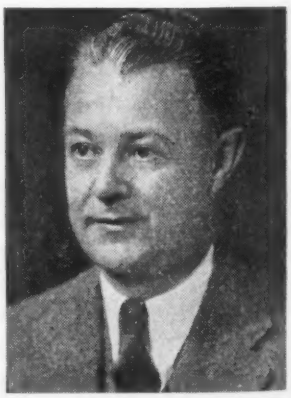
Scott Russell, formerly president of Bibb Mfg. Co., Macon, Ga., who resigned this position to become counsel for the special Senate committee on postwar economic planning, has resigned to become general manager of the Aeronautical Chamber of Commerce in Washington, D. C., effective Oct. 1.

George H. Lanier, president of West Point Mfg. Co., West Point, Ga., and Lanett Bleachery & Dye Works, Lanett, Ala., has been awarded the Silver Antelope by the Boy Scouts of America in recognition of his outstanding work for this organization in the Southeast. This award is the highest honor which can be conferred in scouting.

Lewis D. Smart, manager of Royal Cotton Mill Co., Wake Forest, N. C., has been named president-treasurer. He succeeds **Don P. Johnston,** who resigned to form his own sales agency.

J. Harold Lineberger, Belmont, N. C., textile executive, has been named by Governor **Mel Broughton** as a member of the North Carolina Textile Institute Commission. He suc-

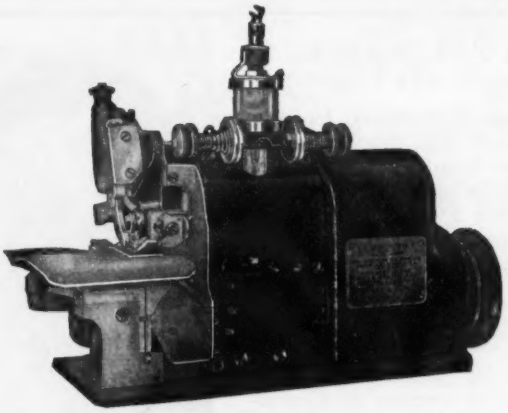
C. N. RABOLD, TEXTILE WORLD CONSULTANT



Effective with this issue, C. Norris Rabold, since 1936 chief chemist of Union Bleachery, Greenville, S. C., becomes also a full-fledged consulting editor of TEXTILE WORLD, primarily responsible for articles covering cotton and rayon bleaching, dyeing, and finishing. The editorial appointment follows a period of six months during which he has acted without title in the same capacity on an experimental basis. During this period the arrangement has been found satisfactory by Mr. Rabold, Union Bleachery, and TEXTILE WORLD; and, without knowing what individual should receive credit, readers have been kind enough to comment on the high quality of Mr. Rabold's work. His duties and responsibilities as chief chemist at Union continue unchanged.

Mr. Rabold was born in Altoona, Pa., in 1903, and received his A. B. degree from Dickinson College at Carlisle, Pa. He taught high-school science and took graduate work at Pennsylvania State College for three years before accepting a position as chemist in the Print Works Division of Pacific Mills, Lawrence, Mass. In 1933, he joined the research service department of the Corn Products Refining Co., where he did general service work, both field and laboratory, on starch, gum, and dextrine problems in cotton slashing, printing, and finishing.

Mr. Rabold is a member of the American Association of Textile Chemists & Colorists and was recently chairman of the Piedmont Section. At the annual meeting of the parent society in Atlantic City, N. J., last month, he had charge of the panel discussion on modern drying methods. He is also a member of the American Chemical Society.



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OVEREDGING, OVERSEAMING AND HEMMING MACHINES

Produces Federal Specification Stitch
Types 501, 502, 503, 504 and 505

WAR WORK DEMANDS

Quality Results—High Production
Convenient Handling
Minimum Time-Out for Adjustment
or Repair—Low Upkeep Costs

Obtain Maximum Quality Production by Using a Machine Suitably Arranged for Your Work—Our Distributors or Our Direct Representatives Are on Call to Advise You Suitable Machine Arrangements for Various War Work and Proper Care and Operation of Machine.

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Acme Products

for seamless hosiery knitting

Speak for themselves

Up-To-Date Machines
Needles

Economy Makers

ACME KNITTING MACHINE & NEEDLE CO.
FRANKLIN, N. H.

CRANE

KNITTING MACHINES

meet the need for Speed—
for Quality and Low Cost

CRANE Knitting Machines meet the demands of rapidly changing patterns and styles. Their middle name is versatility . . . plus smooth, fast running operation that eliminates expensive stops. Among their exclusive features are patented hardened Wing Burr Wheels and patented Thread Stop Motion. There's many a Knitting Mill in which batteries of Cranes are the mainstay of production.

Let us tell you why —and how . . . just **WRITE**

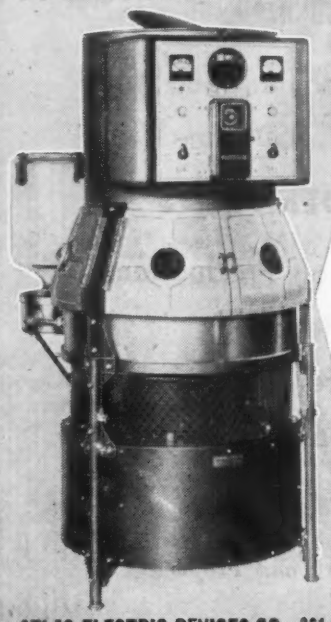
1870 **CRANE** 1944

MANUFACTURING CO.
LAKEPORT, N. H.

Spring Latch Needle
KNITTING MACHINERY

FADE-OMETER

for accelerated color fading



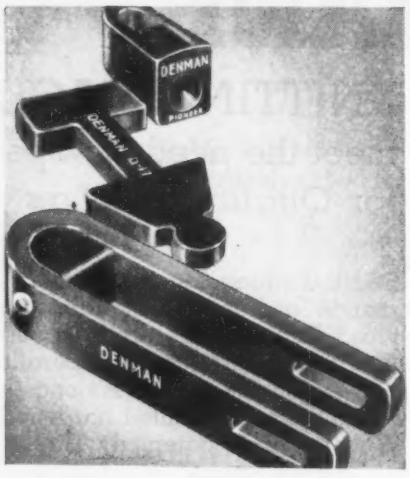
• Originated and made solely by Atlas. Used all over the world and accepted as the standard color testing machine by the textile industry for over a quarter of a century.

Specimens are rotated around the Atlas Enclosed Violet Carbon Arc—the closest approach to natural sunlight. Temperature automatically controlled. No loss of light intensity of arc during life of machine.

ATLAS ELECTRIC DEVICES CO., 361 W. Superior Street, Chicago, Ill.

ATLAS-OMETERS

WEATHER-OMETER ★ LAUNDER-OMETER ★ FADE-OMETER



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PICKERS LUG STRAPS

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Lowest Cost Per Loom Per Year

The Terrell Machine Co., *Inc.*

CHARLOTTE, N. C.

James F. Notman, Needham, Mass. . . . N. E. States
E. W. S. Jasper, Inc., Elizabeth, N. J., Penn., N. Y. and N. J.
W. J. Westaway Co., Ltd., Hamilton & Montreal . . Canada
Geo. Thomas & Co., Manchester, Eng. . . European Agent

NEWS ABOUT MEN

ceeds **E. B. Bunch, Sr.**, of Statesville, who resigned.

Cason J. Callaway, formerly president and later chairman of the board of the Callaway Mills, LaGrange, Ga., has been elected a director of the Chemical Bank & Trust Co., New York.

James G. Hanes, chairman of the board of Hanes Hosiery Mills, Winston-Salem, N. C., has been elected chairman of board of trustees of Greensboro College for Women.

Luiz Dias Lins, Pernambuco, Brazil, president and director of the Companhia Industrial Pirapama in Pernambuco, which centers its activities in hydro-electric power for textile mills and nearby villages and a member of Rotary International, spoke recently before the Richmond Rotary Club, Richmond, Va.

A. C. Lineberger, pioneer textile executive, and head of a number of North Carolina mills, observed his 86th birthday on Sept. 25.

Frank D. Mannion has been elected vice president in charge of sales of Graniteville Co., Graniteville, S. C.

D. S. Ball has been named treasurer and general manager of Whitley Cotton Mills, Clayton, N. C. He was formerly superintendent of Eastern Mfg. Co., Selma, N. C.

W. F. Brosnan has been named manager of all finishing operations of Verney Taunton Mills, Inc., with head office at Taunton, Mass., and branch plant under the name of Verney Mills of Canada, Ltd., Granby, Que. He will supervise the finshing of all fabrics from the six mills now operating under the Verney organization.

James A. King, vice president in charge of sales for Textron, Inc., New York, has also been appointed assistant general merchandise manager for the company. **Lawrence V. Dougherty** has been appointed assistant to Mr. King. Mr. Dougherty had been with the Vassar Co. as assistant to the president and with I. Newman & Sons as vice president in charge of the company's Chicago office.

Arthur I. Anderson has resigned as manager of research and textiles of the American Institute of Laundering, Joliet, Ill., and **Carlyle G. Morton**, formerly assistant to Mr. Anderson, has been promoted to manager of the department.

Dr. JOSEPH BRANT who has been named director of fundamental research by the Institute of Textile Technology, Charlottesville, Va. Dr. Brant is a graduate of Ohio Wesleyan University and of Cornell University. He has been a research chemist in the laboratory of the Tennessee Eastman Corp., Kingsport, Tenn., and lately served as acting superintendent.

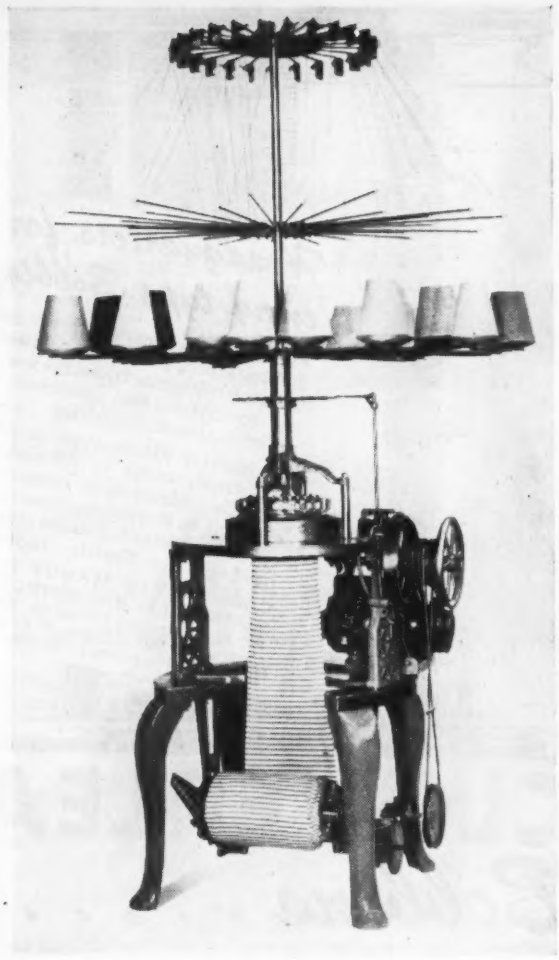
Harry L. Dalton, Charlotte, N. C., has resigned as deputy director of the Cotton and Synthetic division, Textile Bureau, WPB, and will return to his duties as an executive of American Viscose Corp., with headquarters in Charlotte, although serving as a consultant with the Textile Bureau.

Thomas J. Culpepper has joined the Textile Research Department of American Viscose Corp., as an assistant to **Rene Bouvet**, superintendent of the Textile Unit. Mr. Culpepper was previously production manager of Ashland Corp., Jewett City, Conn., and prior to that was associated for 13 years with Eagle & Phenix Mills, Columbus, Ga.

W. F. Goedecke has been named assistant to **M. E. Binz**, president, M. E. Binz Co., Ltd., Montmagny and Valleyfield, Que. Previously he was connected with the Laurentian Silk Mills Ltd., Cap de la Madeleine, Que., and Louis Roessel & Co. Ltd., Drummondville, Que.

Robert W. Neall, assistant sales manager of Bigelow-Sanford Carpet Co., New York, is on leave of absence from the company and has been appointed Chief of the Floor Covering, Upholstery and Pile Fabric Unit of the Wool Branch of WPB's Textile,

3 Features make this NEW Knitting Machine a Must!



The new Model B15 Multiple Feed Latch Needle Knitting machine . . . for all kinds of knitting materials, plain balbriggan, jersey stitch . . . is built on three maxims, to give you a *better* machine:

(1) PRODUCTION: automatic adjustment of jacks, electric stop motion, special electric drive, adequate open space to remove finished fabric.

(2) QUALITY: new design "take-up" provides an evenly-knitted fabric and constant tension on finished fabric.

(3) ECONOMY: yes . . . greater production, lower costs, constant operation!

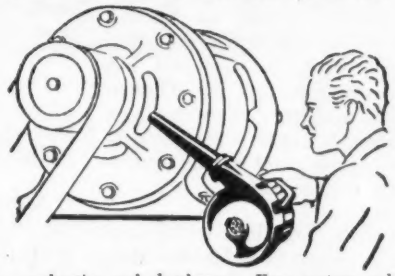
Write today for full details

TOMPKINS BROS. CO., INC.

ONEIDA ST. SYRACUSE, N. Y.

TORNADO ELECTRIC BLOWERS

PROTECT MOTORS— REDUCE RE-PLACEMENTS— CUT POWER COSTS



PREVENT motor burnouts, overheating and shutdowns. Keep motors and machinery clean. Blow out dust, dirt, lint, chips, etc. with the powerful, portable TORNADO Electric Blower. Quickly pays for itself in cutting repair and replacement costs. Write for details and FREE Trial Offer

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SPRING BEARD KNITTING NEEDLES

For Circular, Full Fashioned, Tricot and Milanese Knitting Frames, also Narrowing, Stand, Transfer Points and Welt Hooks for Full Fashioned Machines; Slides, Sinkers, Jacks, Guides or Flat Eyes, Sley and Milanese Points, Transfer Points or Quills, etc.

Sheet Metal Specialties to Order

NEW BRUNSWICK NEW JERSEY

Machine and Hand Knitting

Yarns

[French-Bradford]

for

BATHING SUITS
OUTERWEAR
HOSIERY
UNDERWEAR

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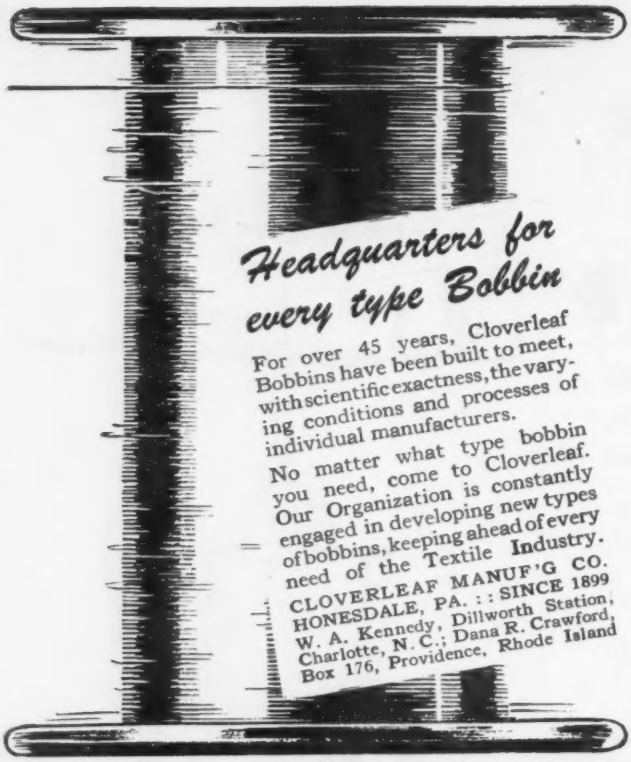
Complete color assortments

American Woolen Company

225 Fourth Avenue New York

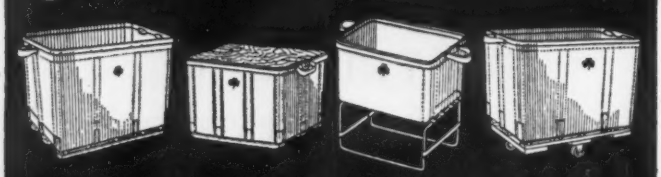

Headquarters for every type Bobbin
For over 45 years, Cloverleaf Bobbins have been built to meet, with scientific exactness, the varying conditions and processes of individual manufacturers.
No matter what type bobbin you need, come to Cloverleaf. Our Organization is constantly engaged in developing new types of bobbins, keeping ahead of every need of the Textile Industry.
CLOVERLEAF MANUF'G CO.
HONESDALE, PA. : : SINCE 1899
W. A. Kennedy, Dillworth Station, Charlotte, N. C.; Dana R. Crawford, Box 176, Providence, Rhode Island

CLOVERLEAF

Bobbins . . . . . .

New type cone drive spindle and bobbin available at end of war.

"Buoy Baskets"



Shamrock Baskets are busier than ever these days. Their rugged construction is a source of satisfaction to users everywhere.

Shamrock

MEESE, INC. Madison, Ind.

NEWS ABOUT MEN

Clothing and Leather Bureau, Washington, D. C.

Paul Garst has been appointed sales training director of Alexander Smith & Sons Carpet Co., New York. He will be responsible for all forms of training essential to maximum sales of both Alexander Smith and C. H. Masland lines. It is a new position. Mr. Garst has been with Smith for some years, lately in charge of contract sales.

G. I. Weibel, formerly personnel director of Philco Corp., Trenton, N. J., and secretary-treasurer of Central Jersey Personnel Association, has been appointed head of the newly formed personnel department of the Magnet Mills, Inc., Clinton and Lake City, Tenn., hosiery manufacturers.

Miss Rachel Penn Lane, of Sanford, N. C., has been appointed librarian of the new textile library in the North Carolina State College Textile School which has been set up for the use of students, faculty members, research workers and the textile mills of North Carolina.

Robert F. Smith has been appointed production manager of Ashland Corp., Jewett City, Conn. He comes to Ashland from the Carleton Yarn Mills, Cherryville, N. C., and fills the vacancy left by **Thomas J. Culpepper,** who has accepted a position at the Marcus Hook plant of the American Viscose Corp.

U. S. Crenshaw is the new superintendent of Harden Mfg. Co. (No. 2), at Rock Hill, S. C. He was formerly associated with Eureka plant of Springs Cotton Mills, Chester, S. C.

L. C. Thomas, assistant secretary of Erwin Cotton Mills, Durham, N. C., has been appointed a cost accountant in the office of accounting and service of OPA in Washington.

W. V. Boyd has retired as general manager of Canadian Cottons Ltd., Montreal, Que., but will continue as vice president and director of the company. **J. Irving Roy** has been appointed general manager and **Joseph Dolphin** has been appointed manager of the firm's various mills. **J. G. Sutherland** succeeds Mr. Dolphin as manager of the company's Gibson Mill, Marysville, N.B.

WALTER B. DILLARD, who has been named executive vice president and agent of Pomona Mfg. Co., Greensboro, N. C., to succeed M. A. Beardon, vice president and general manager for many years. Mr. Beardon will remove to the executive offices of the company in Cincinnati, Ohio, and devote much of his time to postwar planning. Mr. Dillard has been for the last 10 years vice president and general manager of New Braunfels Textile Mills, New Braunfels, Tex.

Albert J. Huber has joined the New York office of Southeastern Cottons, Inc., as a technician, and will specialize in the development of spun rayon fabrics and mill contact work. Mr. Huber previously was with the Fabric Development Department of the American Viscose Corp.

O. A. Harrill has become personnel manager and purchasing agent at Spindale Mills, Inc., Spindale, N. C.

Arthur N. Tingley has joined the Textile Research Department of the American Viscose Corp., and will be associated with its knitting division with headquarters at Marcus Hook, Pa. Mr. Tingley was previously with Textron, Inc., where he was director of control laboratories and located at the company's Lowell, Mass., plant.

A. G. Sewell, Philadelphia, formerly of Cannon Mills, has opened an office in Philadelphia representing the Henderson Cotton Mills and the Harriet Cotton Mills, Henderson, S. C.

J. E. Smenner has resigned his position with Exposition Cotton Mills, Atlanta, Ga., and become research and development engineer of MMC division, Callaway Mills, LaGrange, Ga.

D. C. Anderson has re-

MINEROL

The OUTSTANDING Conditioner for Textile Fibres

- Helps separate long fibres from short
- Prevents waste by saving *good fibres*
- Makes fibres more supple, pliable
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- Safeguards health, insures better working conditions by preventing Dust and Fly

SERVING THE TEXTILE INDUSTRY FOR 68 YEARS. ORIGINATORS OF THE BRETON MINEROL PROCESS FOR CONDITIONING FIBRE.

BORNE SCRYMSER COMPANY
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OUR U.S. WE HAVE TOPPED OUR 10% WAR SAVINGS BONDS EVERY PAY DAY

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KIER BOILING

For better whites and level results, use a pound of STANDARD Grade 40 Silicate with each 3 to 5 lbs. of caustic in your kier boiling formula. Troublesome stains are eliminated and scarce chlorine is saved.

Ask the STANDARD service staff about grey sour-silicate kier boiling procedure for better whites with less bleach.

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- *for cottons rayons and mixed goods*

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Determine Moisture Content Within a FEW MINUTES

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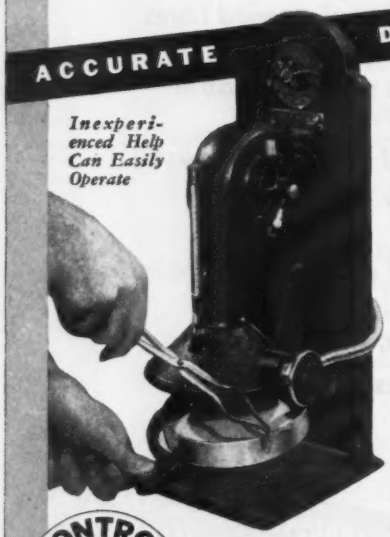

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The *Moisture Teller* is an inexpensive moisture tester. It assures savings in processing time, reduces rejections and improves product quality. Successfully used by many industries.

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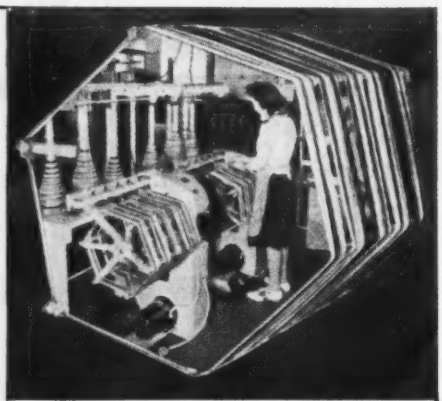
While one machine winds skeins, operator doffs other unit.



20% to 30% more skeins an hour..

up to 50% less floor area..

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TWIN-UNIT SKEIN REELING SYSTEMS

Twin-unit System keeps your operators "on top of the work" with less fatigue. Collapsible arms on reels. Doffing a simple one-arm operation. Automatic yardage control. 50- to 60-second doffing cycle. Compact construction saves space, steps.

Two types. Double-End to wind 12 skeins, designed for rayon, nylon and the finer counts of yarn. Equipped with adjustable reels for skeins 33" to 60". Variable speed drive, 150-400 R.P.M.

Single-End, 6 skeins, for worsted and coarser counts of yarn. Operating speed, 103 R.P.M. Can be equipped with larger reel for skeins, 45" to 75" circumference. Single-End types may be equipped with variable speed. Write for bulletin.

FIDELITY MACHINE COMPANY

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signed his position with Goodyear Clearwater Mills, Cedartown, Ga., and has joined the southern sales force of Sterling Ring Traveler Co., making his headquarters at Cedartown.

A. E. Dyson has been promoted from overseer of weaving to night superintendent of Father George Mill, Sanford, N. C. He is succeeded by **J. R. Cook** lately of the Jefferson Mill, Crawford, Ga. **LeRoy Boiter,** formerly overseer of weaving has resigned. **J. D. Powers** has been promoted from assistant overseer to overseer of clothroom.

Charles R. Moore, who has been superintendent of spinning, winding and warping at Bama Mill, Enterprise, Ala., has resigned, to accept a similar position with Indiana Cotton Mills, Cannelton, Ind.

T. Ansel McNeill has relinquished his position as night superintendent of the Lockhart plant of Monarch Mills, Lockhart, S. C., and has become day superintendent of Eastman Cotton Mills, Eastman, Ga.

Wm. M. Aspinall, Danville, Va., formerly instructor in carding at Riverside & Dan River Cotton Mills, and more recently technical consultant with Werner Textile Co., has become superintendent of Phenix Mill, No. 2 unit, Kings Mountain, N. C.

Glen Whitesides has been promoted to day superintendent of spinning at Ragan Spinning Co., Ragan, N. C.

L. C. Leagan, formerly night superintendent of carding at Laurens Cotton Mills, Laurens, S. C., has become assistant to the superintendent of carding at The Kendall Co., Pelzer, S. C.

H. F. Hoague has relinquished his duties as superintendent of the two plants of American Yarn & Processing Co., Whitnel, N. C., and has become plant superintendent of Trenton Mills, Gastonia, N. C., succeeding **S. M.Cauble,** now superintendent of Acme Spinning Co., Belmont, N. C.

S. L. Bolton has become superintendent of Collins & Aikman Corp., Norwood, N. C., plant. He was formerly associated with Alabama Mills, Dadeville, Ala.

Lester E. Carpenter has been made superintendent of the Fall River division (spun rayon and rayon blend rayon yarns), of the Verney Mills organization. He was formerly with the Lonsdale Co. for 24 years and started in the textile industry with the Nonquitt Spinning Co. of New Bedford.

Harold Lewis, formerly connected with Atlanta Woolen Mills Co., Atlanta, Ga., is now assistant superintendent of carding and spinning for mills No. 1 and 2, Riverside & Dan River Cotton Mills, Danville, Va.

Fred Rosskopf, lately superintendent of Luray Textile Corp., Luray, Va., has been promoted to general technical advisor for the parent company, Schwarzenbach Huber Co., of New York. He has been succeeded by **E. F. Gernt,** of Cumberland, Md.

D. D. Skinnell has resigned as night superintendent of J. & J. Spinning Mills, Maiden, N. C., to become general overseer of spinning and winding at Allred Plant of Granite Falls Mfg. Co., Granite Falls, N. C. **Arson Herman** is now overseer of carding at the Allred Plant, having been promoted to this position.

M. C. Dowda is now assistant superintendent of the No. 2 unit of Highland Cordage Co., Hickory, N. C.

Carl Guthrie has been appointed assistant superintendent in charge of carding and spinning at A. A. Shuford Mill Co., Hickory, N. C.

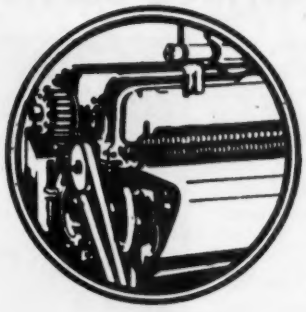
S. H. Messer has become superintendent of carding at Chronicle Mills, Belmont, N. C. He was formerly head of night carding and spinning at Peerless Spinning Corp., Lowell, N. C.

H. G. Morton has become superintendent of carding at A. M. Smyre Mfg. Co., Gastonia, N. C. He was formerly head of night carding at Rex-Hanover Mill, Rex unit, Gastonia.

B. G. Mullinax has resigned as overseer of weaving at Victory Textiles, Greer, S. C., to become associated in similar capacity with Raycord, Inc., Spartanburg, S. C. He has been succeeded by **R. N. L. Bright,** who was promoted from overseer of the cloth room.

WEAVE FOR VICTORY

WEAVE FOR VICTORY



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"VIRGINIA" (SODIUM) HYDRO

A dependable Hydrosulfite for Vat Dyeing and Stripping.

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Constant make-up by continuous flow to the pit. Shipped in steel cylinders containing 150 lb. net weight.

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Resulting from Leaky Roofs.

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MANUFACTURING CHEMISTS FOR THE TEXTILE INDUSTRY

Men in Armed Services

Capt. Hugh S. Jacobs, son of William P. Jacobs, executive vice-president of Cotton Manufacturers' Association of South Carolina, who is with the Fifth army in Italy, has been wounded in action. Capt. Jacobs has been overseas more than two years.

Lieut. William D. Anderson, Jr., son of the president of Gastonia Mill Supply Co. of Gastonia, N. C., recently completed a year's service as a flying schoolmaster of the Army Air Forces at Randolph Field, Texas. He was recommended by his commanding officer for proficient service.

Lieut. R. I. Dalton, Jr., son of the southern manager of Whitin Machine Works, Charlotte, N. C., was wounded while his infantry unit was in action in France. He has been moved to an army hospital in England. He was graduated from the Textile School of North Carolina State College, Raleigh, N. C.

John Hoffman, formerly assistant manager of the Portland, Ore., office of J. O. Ross Engineering Corp., has been promoted to the rank of major. Major Hoffman, who has served throughout the Italian campaign with an outfit attached to the Fighting French, has been decorated with the Croix de Guerre.

COL. DONALD M. BLAKESLEE, one of the most decorated of the U. S. servicemen, who was presented with a navigation watch on behalf of Diamond Alkali Co. employees at a testimonial dinner in his honor. Col. Blakeslee who is commander of the famous Mustang fighter group of the 8th U. S. Air Force in England, has lately been on leave in this country. He was previously employed in Diamond's chlorine department at Painesville, Ohio, and by enlistment in the RCAF in 1940 became the first star in his company's service flag.

Obituary

Ramsey Peugnet, 74, secretary of the old Silk Association of America, New York, and its successor, the National Federation of Textiles for over 40 years ending in 1934, died at Bronxville, N. Y., Oct. 20. For many years he also was secretary-treasurer of the United States Testing Co., a post he relinquished in 1942. He organized the two international silk expositions which were held in New York. He was a member of the second United States silk mission which went to Japan in 1920. He helped organize the design registration bureau of federation and also assisted in forming the Textile Color Card Association. He was a founder of the Trade Association Executives of New York and a former vice president of that organization. He was treasurer of the silk code authority under NRA.

Isaac Christopher Lowe, 77, pioneer cotton manufacturer and banker of Charlotte, N. C., died recently. He was one of the founders of the American Yarn & Processing Co., Mt. Holly, N. C., and was an officer and director of that company. He was also a director in the American Trust Co. of Charlotte.

Peter S. Trumbower, 66, former owner of Nazareth Waist Co., Nazareth, Pa. died recently.

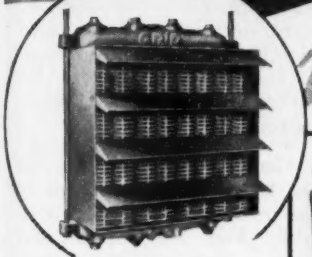
Dr. Fin Sparre, 65, a director of E. I. du Pont de Nemours & Co., and for 25 years director of its Development Department until his retirement from that position on Aug. 31, died suddenly at his home in Wilmington, early last month. He had been connected with the Du Pont company for 41 years.

Miss Catherine Conlin, 64, president and general manager

HERE'S

A UNIT HEATER LINT CANNOT PLUG UP...

GRID Unit Heater



• Because of their open design, GRID Unit Heaters are practically self-cleaning over the entire heating surfaces; that's why lint or particles in the air cannot plug them up. And, because of the materials in their construction they are built to last, as is proven by the many textile mills that have operated them continuously for as many as 13 years.

AND HERE'S WHY

HIGH TEST CAST IRON HEATING SECTIONS

The outstanding features are:

One piece construction heating sections (patented) of high test cast iron that withstand steam pressures up to 250 lbs. . . . No soldered, brazed, welded or expanded connections to become loose or develop leaks. . . . No electrolysis to cause corrosion, breakdowns, leaks, or heating failures.

Complete catalog and capacity tables upon request.

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STYLE 28

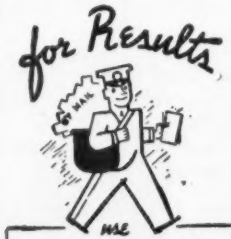
ROVING TRUCK

LANE CANVAS TRUCKS

For the well equipped mill

W. T. LANE & BROS., Inc.

Manufacturers, Poughkeepsie, N. Y.



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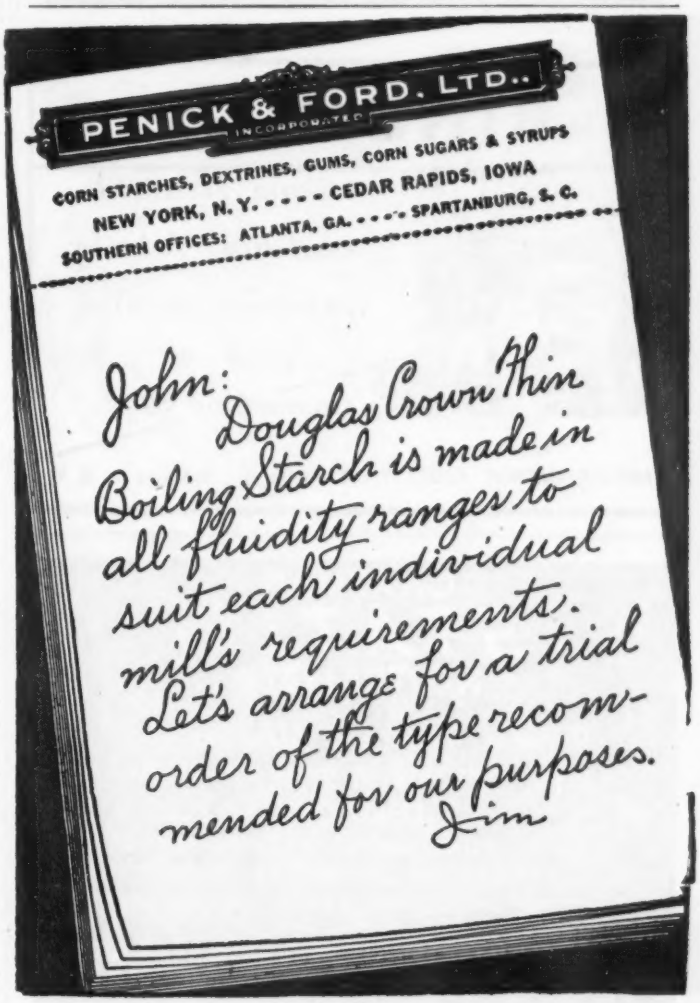
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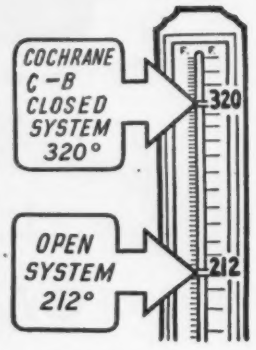
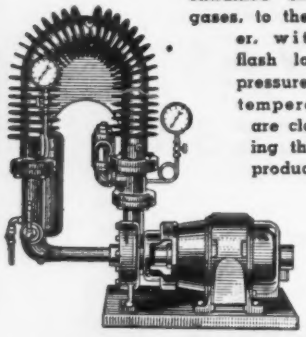
The Cochrane-C–B High-Pressure System of Condensate Return is a remarkable new system of draining condensate from process equipment and returning it free of entrained air and gases, to the boiler, without flash loss — pressure and temperature are close to that of the steam when leaving the boiler. Savings and increase in production are amazing. Ask for details or write for publication 3025.





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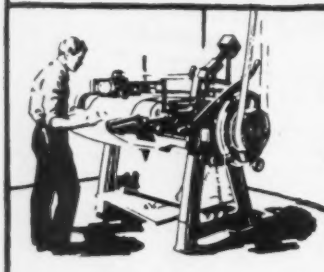

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NEWS ABOUT MEN

of Joseph Simpson & Sons Ltd., knitgoods manufacturers, Toronto, Ontario, died recently. She began her career with the firm as a clerk in 1900.

A. J. Warwick, 79, founder and head for more than 50 years of A. J. Warwick Cotton Co., Memphis, Tenn., died, Oct. 5.

Dr. Emerson B. Helm, 51, pioneer rayon man connected with Industrial Rayon Corp., Cleveland, Ohio, as research chemist since 1927, died last month.

Hayne S. Blackmer, Kings Mountain, N. C., prominent cotton factor, died Sept. 24.

Wm. M. Vermilye, 64, formerly vice president of Thomaston Cotton Mill, Thomaston, Ga., and at one time executive vice president of National Aniline & Chemical Co., died recently.

Dr. Carl Claus, 60, associated with the Bound Brook Oil-Less Bearing Co., Bound Brook, N. J., as vice President in charge of research, died Oct. 5.

Edwin C. Perkins, 67, treasurer of Perkins Silk Co., died Oct. 17 at Springfield, Mass. He was for many years president of the Delta & Perkins Silk Co., Boston.

Dr. Herbert Kimball Faulkner, 85, for many years a director of Faulkner & Colony Mfg. Co., at Keene, N. H., died recently.

William Bradford Pearse, 64, for the past 19 years purchasing agent and assistant treasurer of the Greenville Finishing Co., Greenville, R. I., died at his home in Smithfield, R.I., recently.

P. E. Herman, 75, retired salesman of the Monsanto Chemical Co.'s Organic Division, died recently in Cincinnati. He entered Monsanto's service in 1925, and for 11 years covered a southern and midwestern sales territory.

Oscar M. Bundy, 66, general manager of Oakdale Cotton Mills, Jamestown, N. C., associated with the mills since 1889 in different capacities, died recently.

Charles W. Beaver, 68, associate director of research and product development for The Yale & Towne Mfg. Co., Stamford, Conn., died recently.

Maj. Charles E. Gravely, a graduate of Alabama Polytechnic Institute, at one time with Draper Corp. at Spartanburg and with Bemis Bros. Bag Co., Talladega, Ala. when called to active duty in 1941, was killed in action in Belgium on Sept. 7. He was with the 3rd Armored Division under Lt. Gen. Patton.

George W. Smith, 47, for the last nine years assistant to the manager of Springs Cotton Mills, Fort Mill, S. C., and prior to that with the Union-Buffalo Mills, Union, S. C., died in Charlotte, N. C., Oct. 10.

Albert H. Chamberlain, 71, treasurer of Arlington Mills of Boston and Lawrence, Mass., died recently. He practiced law until 1913.

Pat H. Smith, 62, partner with his brother, George W. Smith, and C. B. Newton in the operation of the Ideal Roller Cover Shop, Gastonia, N. C., textile supply firm, for the last 35 years, died Oct. 5.

Harold Rowlands, 62, assistant comptroller of Pepperell Mfg. Co., died at Boston Oct. 21.

John Bruce, 38, a departmental superintendent at Cliffside Mills, Avondale, N. C., plant, was killed in a plane crash recently.

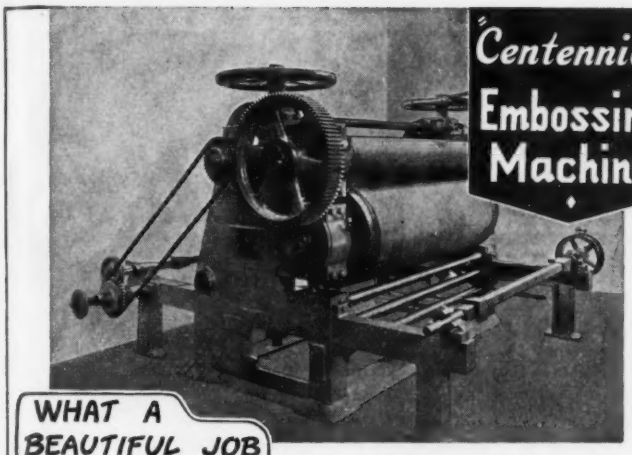
George J. Cushwa, 51, secretary of Roxboro Cotton Mills, Roxboro, N. C., died recently.

Wallace W. Riddick, Jr., formerly assistant superintendent of the Lexington Silk Mill, Lexington, N. C., before his going into active duty as lieutenant in infantry, was killed in combat in France Sept. 1.

James Derald Daniels, of Kannapolis, who, until he entered the armed service, was employed in the sheet department of Cannon Mills plant No. 1, was killed in action on Morotai Island in the Pacific on Sept. 22.

Abraham S. Moyer, 51, machinery maintenance man in Colonial Knitting Mills, Mohnton, Pa., died recently.

George C. Bower, superintendent of Carleton Woolen Co., Inc., Rochdale, Mass., died Oct. 8 at Worcester.



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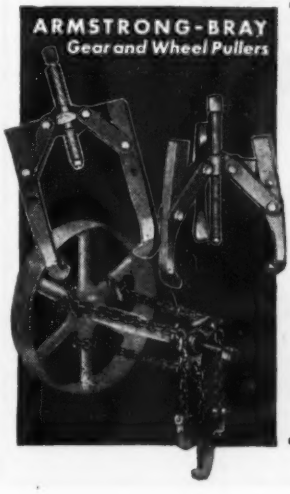

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TOUCHDOWN!

Winning touchdowns come from tightly-knit teamwork

Team up with the Corn Products technical staff . . . always at the service of the textile industry . . . ready to assist manufacturers with their textile problems.

CORN PRODUCTS SALES COMPANY

17 Battery Place **New York 4, N. Y.**

Greenville, S. C. Greensboro, N. C. Atlanta, Ga.
Spartanburg, S. C. Birmingham, Ala. Boston, Mass.

NEWS ABOUT Mills

Cotton Mill News

Alabama Mills, Inc., Birmingham, Ala., have been instructed by WPB to continue operations at branch mills at Jasper, Haleyville and Russellville, Ala., for an estimated output of about 3,000,000 yds. of cotton goods in next 90 days.

American Yarn & Processing Co., Mount Holly, N. C., has plans for rebuilding and modernizing of former Nims mill, idle for some time, with installation of new equipment and facilities to provide for production of about 75,000 lb. of cotton yarn per week. Cost estimated over $275,000, with machinery. Priority rating has been secured and work will begin soon. At later date company will carry out a similar program at Alsace Mills, including construction of new one-story addition for warehouse service. Sanderson & Porter, New York, N. Y., are engineers for first noted project. Yarns from 3s to 20s will be spun.

Anniston Mfg. Co., Anniston, Ala., has constructed an addition at cost of approximately $85,000, for building and equipment.

Belmont Cotton Mills, Shelby, N. C., have been purchased by C. E. Neisler, Jr., head of Neisler Mills, Inc., Kings Mountain, N. C., and associates. Sale includes tract of about 15 acres and approximately 40 dwellings. New owners are said to be planning to continue operations for cotton yarn manufacture.

Carufel Braid & Webbing Co., 46 Bucklin St., Providence, R. I., has filed notice of organization to operate a local mill. Samuel Carufel, 220 Woodbury St., is head.

G. & B. Yarn Co., Cottondale, Ala., suffered a loss of $100,000 when two main buildings were destroyed by fire Sept. 23.

Georgia Webbing & Tape Co., Columbus, Ga.—Controlling interest has been sold by J. R. Killian to a new group. Officers under the new management are W. B. Thompson, president; J. S. Briggs, treasurer; P. H. Slaughter, vice president and sales manager; C. Walter Mullin, vice president and production manager; and M. Culpepper, secretary. Mr. Killian continues as a member of the board.

Hannah Picket Mills No. 1, Rockingham, N. C., has been bought by Safie Bros., New York, a deal negotiated through the New York office of the Crescent Corp. Safie Bros. will merchandise the product of the mill's 2,200 broad looms. They also operate the Prattville Cotton Mills, Prattville, Ala.

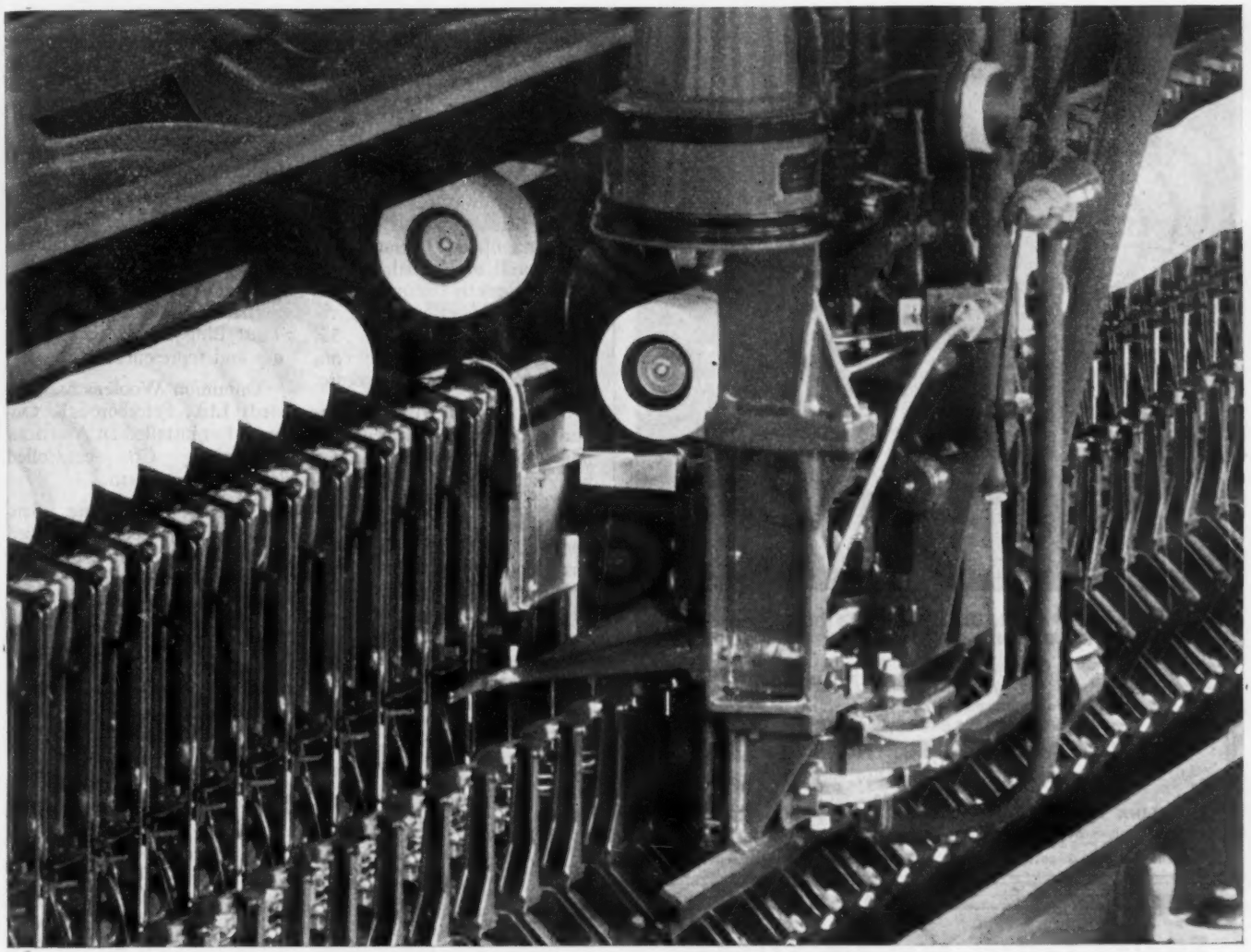
Manhattan-Raybestos, Inc., Stratford, Conn., has let contract to O. F. Burghart, Bridgeport, Conn., for one-story addition, about 25x50 ft., with work to begin at once.

Maxton Mills, Inc., Maxton, N. C., recently purchased from Morgan Mills by Troy Whitehead, of Charlotte, N. C., has had new machinery installed and plant will be enlarged. Mr. Whitehead has assumed management of the plant, with J. T. Huneycutt, of Albemarle, N. C. as superintendent. The plant is now producing cotton yarn.

Quissett Mill, New Bedford, Mass., has ceased operations and the remaining machinery will be sold. Part of the original plant, operating on yarn orders at the time of the recent hurricane, was so damaged that it was decided to liquidate.

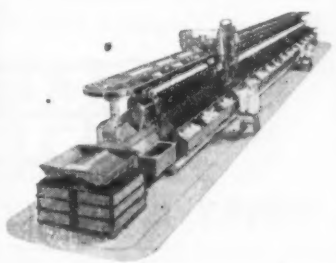
Palmer Bros. Co., New London and Fitchville, Conn., control has been acquired by Lester Martin and Morris David of New York.

Pennacle Mills., Easley, S. C., has begun the manufacture of fine cotton yarn chiefly for knitting. The present output is 20,000 lb. weekly. This new industry is owned by Easley Fertilizer Co., with W. F. Davis as general superintend-



You Want Machines that Keep Running

WHEN you are trying to do a good job of making textiles, you want machines that keep running without a lot of down time for repairs and service. Machines that don't keep running do two things — they cut production and they run up the cost of the goods. And operators lose time when their machines are out of order.... If you will check the records of Barber-Colman Automatic Spoolers and Super-Speed Warpers, you will find they *do* keep running. That is not just luck. We build these machines to keep service costs low, because we realize how much that means to you. Throughout the machine we use good materials and workmanship so the parts will have long life with little wear. During the past twenty-five years we have made many changes and improvements which have bettered performance and reduced maintenance costs. All this adds up to: If you want to produce better war goods faster, and at lower cost, use the Barber-Colman System.



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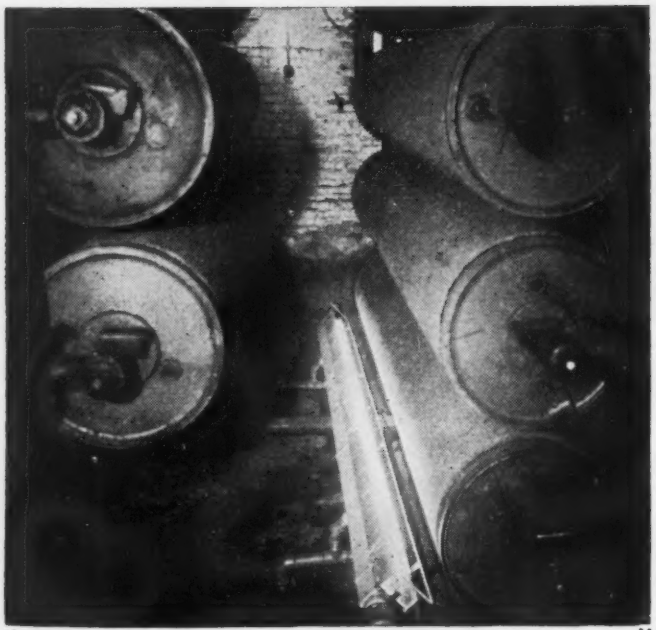
Automatic
SPOOLER

AUTOMATIC SPOOLERS • SUPER-SPEED WARPERS • WARP TYING MACHINES • TWISTER CREELS • MOISTURE CONTENT CONTROLS

BARBER-COLMAN COMPANY
ROCKFORD, ILLINOIS, U. S. A.
FRAMINGHAM, MASS., U. S. A. GREENVILLE, S. C., U. S. A. MANCHESTER, ENGLAND



RED RAY RADIANT HEAT BURNERS
SPEED UP DRYING OF THICK FELTED GOODS
A single 119 inch Red-Ray Burner applied to cans for drying inch thick felted material. Drying speed increased 60 per cent.
WRITE FOR COMPLETE DETAILS
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455 W. 45th STREET — NEW YORK, N. Y.
Southern Representatives:
CAROLINA SPECIALTY COMPANY CHARLOTTE, N. C.
New England Representative: G. D. YEATON Hornbine Road, Swansea, Mass.
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*Scott Testers speak a universal language, authoritative in Bureaus, Societies and Laboratories everywhere. Our 60 models represent the maximum effectiveness and convenience in testing for tensile, hysteresis, crepeage, twist, flexing, burst, etc., etc.
SCOTT TESTERS
*Registered Trademark
HENRY L. SCOTT CO. 95 Blackstone St. Providence, R. I.

J. E. SIRRINE & CO.
GREENVILLE • SOUTH CAROLINA
Engineers
TEXTILE MILLS • CHEMICAL PROCESS PLANTS
PULP & PAPER MILLS • WASTE DISPOSAL
STEAM POWER PLANTS • STEAM UTILIZATION
WATER • APPRAISALS • PLANS • REPORTS

ent and P. W. Pollard, superintendent.

Safie Mfg. Co., Inc., Rockingham, N. C., has been chartered by Safie Bros. Co., Inc., 1170 Broadway, New York, N. Y., textile products, to take over and operate former local No. 1 mill of Hannah Pickett Mills, recently acquired, as reported previously, for a reported consideration of $2,880,000. Plant will be continued in service as heretofore.

Santee Cotton Mill, Orangeburg, S. C., together with warehouse and stocks on hand, have been sold to the South Carolina Cotton Mills, Inc. The new owners will continue to operate the plant without interruption and without change in the type of textiles manufactured. The South Carolina Cotton Mills, Inc., was recently chartered with capital of $125,000. The officers are: Nicholas Handal, president; George S. Handal, vice president; Abraham S. Handal, secretary, and Joseph S. Handal, treasurer.

Southern Brighton Mills, Shannon, Ga., had its new office building partially destroyed by fire Oct. 17.

Wentworth Manufacturers of Mass., Fall River, Mass., have incorporated to make textiles. Leonard A. Hardell, Hingham; and Wilmot D. Griffith, Boston, are associated with the company which is capitalized for $100,000.

Woods Mfg. Co. Ltd., Welland, Ont., the Empire Cotton Division, has installed the latest Saco-Lowell opening and picking equipment, together with new automatic filling winders. An entirely new automatic humidification system in the card room has been installed by the American Moistenig Co.

Wool Mill News

Allendale Co., recently incorporated, will operate the 10,000-spindle worsted mill at Allendale, R. I., of Collins & Aikman Co. Charles B. Rockwell, who has resigned his connection with WPB, is president of the new company. Harry W. Munro is secretary. No change in operations of the mill is planned.

Belle Wool Combing Co., has been formed by Fred Belle and Joseph Talbot at Lowell, Mass. They have taken over the former Bowen Wool Combing Co. The plant has 9 sets of cards and 9 combs. Mr. Belle is manager.

Carpenter Mfg. Co., Providence, R. I., recently chartered with capital of 600 shares of stock, no par value, plans operation of local mill on cotton and woolen products. New company is represented by Bernard B. Abedon, Industrial Trust Bldg., Providence, attorney and representative.

Dominion Woolens & Worsteds Ltd., Peterborough, Ontario, has installed an American Moistening Co. controlled humidifying system.

Goodall-Sanford, Inc., Sanford, Me., has been organized under direction of Union Securities Corp., New York, N. Y., to take over and consolidate Goodall Worsted Co., and Sanford Mills, Inc. New organization will be capitalized at about $22,000,000. Elmer L. Ward, heretofore president, Goodall Co., sales interest of Goodall Worsted Co., will be in charge of mill production in future.

Premier Worsted Mill, Caraleigh, N. C., which was taken over last year by Herbert Lawton & Co., through the State Department of Conservation & Development, is now operating at about one-fourth capacity, but production will be increased as soon as manpower is available. Forty-eight looms have been installed, but when complete equipment has been set up the plant will have 144 looms. The mill is now manufacturing worsted yarn. Charles D. Whitney is general manager and vice president of the Premier Worsted Mill, and Joseph Shockley is assistant manager. Charles E. Wood is plant manager.

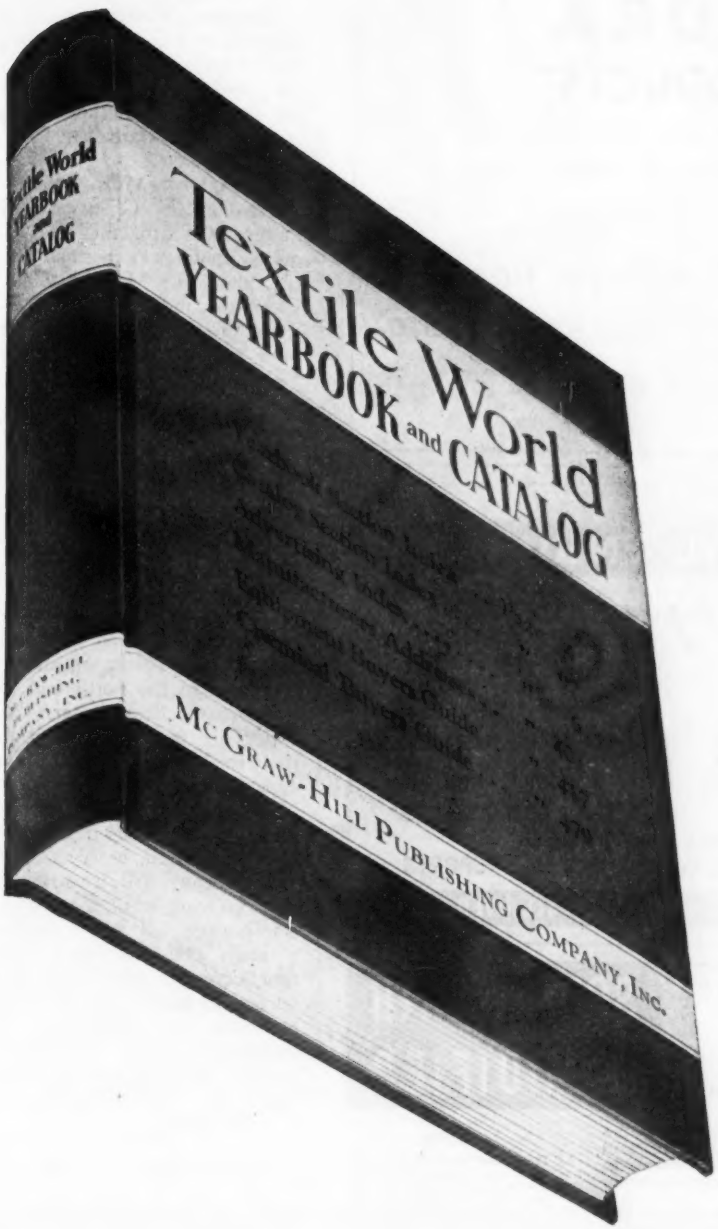
Priscilla Worsted Mills, Johnston, R. I., has rejected bids for a 2-story brick office building because the estimates were high. Plans will probably be revised by Jenks & Ballou, Providence, R. I., engineers for the project.

Raylaine Worsteds, Inc., Manchester, N. H., plans postwar installation of additional equipment for increased output.

Rock River Woolen Mills, Janesville, Wis., have completed plans for new one-story addition, including improvements in present mill.

Tioga Woolen Mills have leased Building 22-A of the

LOOK IT UP FIRST—IN



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KEARNY

MANUFACTURING COMPANY, INC.

Kearney, N. J. Greenville, S. C.

announces

The manufacture and marketing of its series of

PLURA PRODUCTS*

Offered for the first time in 100% Solid-block form. *Do Your Own Diluting*

PLURAMINE AH—*for finishing*
PLURAMINE D—*for kier-boiling*

Your inquiries are invited

* Reg. U. S. Pat. Off.

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Specializing in

TEXTILES FOR MORE THAN A QUARTER OF A CENTURY

RALPH E. LOPER CO.

COST SYSTEMS WORK LOAD STUDIES
PAY ROLL CONTROLS
COST REDUCTION SURVEYS SPECIAL REPORTS

GREENVILLE, S.C. FALL RIVER, MASS.

***Simplified* DESIGN**
***Flexible* POWER**
***Better* EVAPORATION**
***More sensitive* CONTROL**

SOUTHWORTH HUMIDIFIER

Experienced textile men who know the merits of previous models of Southworth Humidifiers have found improvements in Model D that make it even more reliable and efficient.
Extreme sensitivity of control, and an "airplane propeller" type fan for greater evaporation, are two outstanding features.

NOTE

This advertisement is to remind you to include Southworth Humidifiers in your after-the-war plans. Frankly, we are 100% on war work and cannot make humidifiers at the present time.

THE SOUTHWORTH MACHINE CO.
PORTLAND MAINE

Dobson plant, Falls of Schuylkill, Philadelphia, Pa., from Frank G. Binswanger, Inc., representing the John & James Dobson Trust.

Rayon & Silk Mill News

American Enka Corp., Enka, N. C., has let contracts for constructing a 5½-mile pipe line from the French Broad River to Enka Lake at a cost between $350,000 and $500,000 to increase its water supply, a step made necessary by the doubling of production.

American Viscose Corp., is reported to have taken options on 740 acres in Pulaski County, Va., and indications are that the concern is planning an expansion in that area.

Burlington Mills, Corp., Greensboro, N. C., as part of its post-war program, has acquired an interest in small textile plants in Mexico, Cuba, Colombia, and Australia. While these foreign operations will be on a small scale, the company feels that it will be able to pioneer in introducing fine fabrics at reasonable cost in these countries. Britt M. Armfield, a vice-president, heads the foreign division of Burlington. Having already visited South and Central America to make arrangements for starting mills, he now is in Australia.

Celanese Corp. of America has taken an option on an 18-acre tract in the north end of the town of Bridgewater, Va., and there is every indication that the company will build a large plant there, but no official announcement has been made as yet relative to this. It is announced, however, that the company will construct a new knitting mill, as a post-war project. It will comprise a main one and multi-story unit, equipped with about 500 tricot machines and auxiliary apparatus for production of underwear cloth and dress goods. It is understood that plans for building will be prepared soon.

Cheney Bros., Manchester, Conn., have approved plans for extensive development and modernization program at mill, including construction of new one-story addition for printing, steaming and finishing department, as well as other structures. Changes and improvements will be made in No. 1 and No. 3 weaving mills, with installation of considerable additional equipment. Project will be carried out over a period of months. H. F. Ferguson Co., Hanna Bldg., Cleveland, Ohio, is engineer.

Cleveland Silk Mills, Inc., Cleveland, Tenn., have been sold by E. E. Pickard, president and treasurer, to Harold A. Chappell, of West Orange, N. J., and associates. Mr. Pickard is retiring from the business. The new owners plan no change in the personnel of the executive personnel at present. C. Zell Taylor, who has been with the mill since it was organized, will continue as general superintendent.

Leon Ferenbach, Inc., Johnson City, Tenn., is expanding its facilities by using an adjacent building. Plans are to step up present production of rayon about 15%.

Lorraine Mfg. Co., Pawtucket, R. I., has arranged for the sale of its cotton and rayon division to Jacob Ziskind, Fall River, Mass. Mr. Ziskind states that he will continue operation of the mill under the name Rayon Mills, Inc. N. A. MacCall, president of Lorraine, says that his company will continue operation of its worsted plant as in the past.

Schwarzenbach Huber Co., New York, will soon establish a rayon piece goods weaving plant at Hermosa Beach, Calif. It will occupy four acres of land and buildings on the former site of the Golden State Mills at Seventeenth and Railroad Aves. The plant will manufacture piece goods for garment manufacturers in the western states.

United States Rubber Co's. rayon tire-cord plant at Scottsville, Va., erected and equipped at a cost of $2,240,000 by the Defense Plants Corp., began full operations Oct. 9.

Verney Mills, Inc., Manchester, N. H., has built a 1-story, 22x35 ft. compressor room at the plant on McGregor Street at a cost of $3,000. Robie Construction Co., Manchester, did the work.

Processing Plant News

Electro-Technical Products, Inc., 113 East Center St., Nutley, N. J., operating a fabric processing mill for coated textiles, oiled silk, etc., plans early erection of one-story addition, about 70x400 ft., to cost over

DYED ACETATE RAYON!

finished with

ARIPEL-FS

Reg. U.S. Pat. Office

Has Excellent Fastness to Atmospheric Gases

Yes, acetate rayon dyed fabrics treated with double-action ARIPEL-FS are remarkably resistant to the fading action af atmospheric gases as proven by the "Gas Chamber" test.

ARIPEL-FS is also an effective softener and therefore works two ways in a one bath treatment —

- **Increases the gas-resistance of the color.**
- **Imparts a soft, smooth pleasing finish.**

ARKANSAS CO. INC.

Manufacturers of Industrial Chemicals for over 40 Years

Newark, New Jersey

AMERICAN

. . . more economical to use because . . . .

it runs more efficiently, producing a finer quality product that can be sold easier and more profitably

AMERICAN
YARN AND PROCESSING CO

MOUNT HOLLY, NORTH CAROLINA

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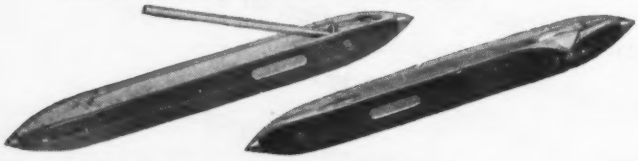
Whatever the Weaving Requirements

— depend on WATSON-WILLIAMS, the Shuttle People, with over 100 Years experience and originators of the century's leading Shuttle improvements.



WATSON-WILLIAMS MFG. CO., Millbury, Mass.

SOUTHERN OFFICE: W. F. Daboll, John W. Littlefield, 810 Woodside Building, Greenville, S. C.

NORTHERN REPRESENTATIVE: G. C. Burbank, 32 Beaconsfield Rd., Worcester 2, Mass.

"YOU CAN COUNT ON WAK COUNTERS"

They are

RUGGED

ACCURATE

DEPENDABLE

We build single, double and triple pick counters; yardage, rotary, ratchet and special counters.

Write—Phone—Wire

WAK INDUSTRIES
CHARLOTTE, N. C.

$75,000, with equipment. Joseph R. Kordys, 246 New York Ave., Newark, N. J., is architect.

Fairfield Products, Inc., Norwalk, Conn., recently organized with capital of $20,000, plans operation of a textile processing and finishing mill in this vicinity. Victor F. Mutch, Glenbrook, Conn., is principal incorporator and representative.

Holliston Mills, Inc., Kingsport, Tenn., bleach house and adjoining building were damaged by fire Oct. 13.

Velvet Textile Corp., Glastonbury, Conn., will occupy the former Glastonbury Knitting Mills in the Addison section to finish and dye velvets. Alterations will be made and new machinery will be installed when available.

Western Shade Cloth Co., 2003 South Des Plaines St., Chicago, Ill., has taken out a permit for one-story addition, 21x25 ft., to be used as a tank house. Work wll proceed at once. E. P. Lewin, 160 North LaSalle St., is architect.

Knitting Mill News

Associated Knitted Outerwear Mills, Inc., New York, N. Y., care of Joseph J. Juhass, 415 Lexington Ave., New York, attorney and representative, has been organized with capital of 200 shares of stock, no par value, to operate a mill in this vicinity.

Bell Hosiery Co., Suffolk, Va., which had operated 30 years until forced to close in 1942 when rubber yarn was frozen by the government, has sold its machinery to the Morristown Knitting Mills, Inc., Morristown, Tenn., which firm will move it to Morristown.

Carter Knitting Mills, Lincolnton, N. C., has been incorporated to manufacture knitted cloth with authorized capital of $100,000, of which $300 has been subscribed by A. D. Carter and E. H. Gregg, both of Gastonia, N. C., and George E. Dombhart of Charlotte.

Gann Hosiery Mills, Durham, N. C., plans to erect an addition to the plant at Alston Avenue and Pettigrew Street, which will include a dyeing department in the basement.

Julius Kayser & Co., New York, N. Y., plan extensive postwar expansion and improvement program at mills, with installation of new equipment to replace obsolete machinery, and additional facilities for enlarged output. Entire project is reported to cost close to $5,000,000.

Mock, Judson, Voehringer Co., Greensboro, N. C., has changed its name to Mojud Hosiery Co., Inc.

Princeton Knitting Mills, Inc., Waterbury, Conn., has filed plans for office alterations to cost about $10,000. Louis T. Alexander, Waterbury, is the architect.

Regent Knitting Mills, Ltd., Montreal, Que.—Controlling interest in this company has been acquired by Hyman Grover, president and managing director of Grover Knitting Mills, Ltd., same place.

Standard Hosiery Mills, Alamance, N. C., suffered damage estimated at several thousand dollars on Sept. 30 when heavy rains caused Alamance Creek to leave its banks and flood the basement of the mill to a depth of six feet.

Windy City Knitting Mills, Inc., Hickory, N. C., has received a certificate of incorporation with capital of $100,000 and subscribed stock of $300 by C. O. Ellis, R. G. Hafer and T. F. Cummings, all of Hickory. This firm, heretofore a partnership, will continue in the manufacture of men's anklets, under the managership of C. O. Ellis.

Miscellaneous Mill News

American Linen Co., 210 West 155th St., New York, N. Y., has acquired a two-story building, about 20,000 sq. ft. floor space, at Harrison and S.W. 1st. Sts., Portland, Ore., and will improve and equip for new branch mill.

Stark Mills, unit of United States Rubber Co., Hogansville, Ga., have begun work on a project which will double the capacity of a mill unit completed in 1943 for manufacture of asbestos yarn. Additional machinery will be installed. Company has also awarded contract to Daniel Lumber Co., LaGrange, Ga., for the erection of 17 dwellings for operatives.

SEARCHLIGHT SECTION

WANTED

PRODUCTION MANAGER BRAIDED RUG MILL

Large eastern cotton rug manufacturer has opening in organization for production manager in braided rug division; excellent future for right man who must be conversant with all phases of business including raw materials, labor training, styling. State full details experience, age, compensation desired, etc. All replies will be held strictly confidential.

P-994, Textile World
330 West 42nd St., New York 18, N. Y.

WANTED

KNITTING MILL FOREMAN

Splendid opportunity for the future for a man capable of supervising knitting production and machine set-ups on Dubied and Grosser Flats, and Circular Brinton machines; preference given to one who can also handle the finishing department. In applying, give full details of experience, references, age, if married, and how soon could start work, if engaged. Address in confidence Charles P. Raymond Service, Inc., 294 Washington St., Boston, Mass. We invite correspondence (confidential) with men seeking positions and employers seeking men.

WANTED

MECHANICAL and RESEARCH ENGINEER

Old established manufacturer of textile machinery located in the Metropolitan District desires to employ a Mechanical Engineer in permanent position for research in development of textile machinery. Address

P-999, Textile World
330 West 42nd St., New York 18, N. Y.

WANTED

PLANT ENGINEER

Large established southern company desires graduate engineer, or equivalent, with practical experience in operation and maintenance of cotton mill, bleachery, and finishing plant. Permanent position, good future, attractive salary. Excellent postwar opportunity.

P-986, Textile World
520 North Michigan Ave., Chicago 11, Ill.

TEXTILE COLORIST

WANTED

Colorist, Chemist, thoroughly experienced, capable to mix vats, directs, and acid colors etc. for Screen Printing on all types of fabrics. State in detail all your qualifications age, and experience. Splendid opportunity for the right man.

P-957, Textile World
330 West 42nd St., New York 18, N. Y.

WANTED

FIXERS

for Scott & Williams and Acme Hosiery Knitting Machines
Steady Employment

P-938, Textile World
330 W. 42nd St., New York 18, N. Y.

POSITIONS VACANT

WANTED: MAN capable of taking full charge of help in small Braiding plant making flat and round braids. Must be able to cut and set up New England butt braiders. State years experience and salary expected. P-101, Textile World, 330 W. 42nd St., New York 18, N. Y.

WANTED, RUG designers: Both senior and junior for nationally known mill. Write, stating full details, experience, age, and other qualifications. Also character and business references required. All replies strictly confidential. P-102, Textile World, 330 W. 42nd St., New York 18, N. Y.

WANTED: EXPERT repairman on Barber-Colman portable warp tying machine model LL and LS to take full charge of warp tying, hand twisting, and entering department in southern mill running high grade yarn dyed rayon and cotton stripes on jacquard and dobby looms. Must understand fancy harness and reed layouts. Good starting salary with excellent permanent future for capable man. Modern home available. P-104, Textile World, 330 W 42nd St. New York 18, N. Y.

POSITIONS WANTED

TEXTILE INSTITUTE graduate. Twenty-five years executive experience wool and worsted, private concerns and government. Desires change in executive capacity. PW-914, Textile World, 330 W. 42nd St., New York 18, N. Y.

NYLON HOSIERY tram throwing. Post-war plans of a large hosiery mill. A technical and practical superintendent of modern throwing desires to contact a hosiery mill contemplating their own nylon throwing department. Married, age 38, location no object. PW-913, Textile World, 330 W. 42nd St., New York 18, N. Y.

MILL MANAGER cotton yarns wants position. Would welcome the opportunity to manage an inefficient operating mill on a bonus basis. 25 years practical and technical experience producing corded, combed and blended yarns. At present employed as supt. 45 years old. N. E. preferred. PW-973, Textile World, 330 W. 42nd St., New York 18, N. Y.

PRACTICAL RAYON throwster. Wide experience in the throwing field—capable organizing large or small throwing departments. Age 43 years, married, 1 child. PW-975, Textile World, 330 W. 42nd St., New York 18, N. Y.

SUPERINTENDENT, Textile School graduate 40 years of age, married, 15 years experience in silk rayon and cotton, desires change. PW-977, Textile World, 330 W. 42nd St., New York 18, N. Y.

ENGINEERING ESTIMATOR. Fourteen years experience in chemical and textile plant equipment and construction estimating, and also well versed in machine shop practice and purchasing, desires responsible permanent position with well established company. PW-105, Textile World, 520 N. Michigan Ave., Chicago 11, Ill.

WANTED JOB—boss knitter or production manager. 23 years experience. Give best of reference. Personal interview if desired. PW-103, Textile World, 520 N. Michigan Ave., Chicago 11, Ill.

TRICOT TECHNICAN now employed, desires change. Extensive experience in all phases of warping and knitting in the tricot and simplex trades. Would like opportunity to plan and develop new tricot or simplex plant. PW-107, Textile World, 330 W. 42nd St., New York 18, N. Y.

(Continued on page 252)

POSITION WANTED

TRICOT MACHINE EXPERT

desires change in position.

PW-958, Textile World
330 West 42nd St., New York 18, N. Y.

WANTED

UNUSUAL OPPORTUNITY

For gentleman to contact the textile industries in New England, New Jersey and Pennsylvania. Must have chemical training, should be able to demonstrate and assist in the dyeing and finishing of woolens and worsteds. Old established manufacturer. Apply only if qualified, state age and compensation desired.

P-989, Textile World
330 West 42nd St., New York 18, N. Y.

WANTED

Knitting Machine Fixer

Good salary and excellent opportunity at Virginia plant of nationally known AAA1 Company. Must be experienced on Wildman Circular Spring Beard needle machines, models FBSS and FBSS-6. Applicant should have personality that will qualify him for supervisory position. *Write in detail.*

P-968, Textile World
520 North Michigan Ave., Chicago 11, Ill.

POSITION VACANT

TECHNICAL EDITOR

For textile magazine. Must have exceptionally good command of English. Write experience and salary required.

P-854, Textile World
330 West 42nd St., New York 18, N. Y.

WANTED

BOSS FINISHER

Large Canadian Woolen Cloth Mill has vacancy for a Boss Finisher. Must be experienced in piece and stock dye cloths for both men's and women's wear trade. Give full particulars of experience in first letter.

P-987, Textile World
330 West 42nd St., New York 18, N. Y.

WANTED

WARPER & BEAMER

Experienced on cotton (Plush Mill)

Give full details in first letter

P-983, Textile World
330 West 42nd St., New York 18, N. Y.

THERE ARE MANY ATTRACTIVE OPENINGS IN MILLS

In all sections of the United States and Canada. If you are seeking employment, write us fully regarding your experience and position desired; we will inform you of positions now open in your line of work.

CHARLES P. RAYMOND SERVICE, Inc.

294 WASHINGTON STREET BOSTON 8, MASS.

Over 45 years' confidential employment service for men seeking positions and employers seeking men.

(Selling & Business Opportunity Advertising—page 252)

SEARCHLIGHT SECTION

FOR ENGINEERING SALES

LARGE established industrial manufacturer of precision products used in all kinds of machinery and equipment has opening in Sales Engineering Department for man trained in Mechanical or Electrical Engineering with some shop and drawing room experience preferably in textile machinery field. This is a postwar proposition. Good opportunity for advancement. Straight salary plus traveling expenses. In original reply please state your age, college, qualifications and other vital information. Applicants chosen for consideration will be interviewed by the man for whom they will work.

SW-991, Textile World
330 W. 42nd St., New York 18, N. Y.

Are You The Man We Want?

Experienced salesman between 25 and 40 years of age, a self starter with plenty of "Go," who believes as we do that there is an unlimited future in the plastics industry. He must know the textile business well enough to intelligently discuss the use of plastic monofilaments for furniture fabrics, auto seat coverings, etc., as well as to uncover new ways to utilize plastic threads and cordage. His job will lead to the sales management of an important division in a large, successful, well established company in Chicago. Immediate work will consist of sales research, planning and sales contacts to lay a firm foundation for the future. Write fully as to your qualifications, experience and references. Your letter will be held in strictest confidence.

SW-113, Textile World
520 North Michigan Ave., Chicago 11, Ill.

MANUFACTURERS EXPORTERS

H. H. BRANDT
Wingello House, Angel Place
SYDNEY AUSTRALIA

WANTS Representations

Textile Goods (Silk, Cotton, etc.) for Australia and New Zealand.

Excellent References.

REPRESENTATIVES WANTED
(Continued from page 251)

SALES REPRESENTATIVES wanted. Individual or manufacturers agents having established contact with heads of Textile Mills. Must have good business record and reference. To work with our established factory representatives in Atlanta, Ga., Greenville, S. C., Charlotte, N. C., and Virginia. Training for contracting for industrial air conditioning will be given by our factory and field men. Mechanical knowledge helpful but not necessary. Steamaire Company, Cincinnati 2, Ohio.

DISTRICT SALES representative — An outstanding manufacturer of textile chemical processing specialties has an important position open in the states of Georgia and Alabama for a man with the proper qualifications. A technical school graduate with practical will background is essential. Unlimited opportunity for the post-war period. In replying give complete business record for the past ten to fifteen years, references, family status, whether presently employed, and enclose recent snapshot (not returnable). Our organization knows of this advertisement. RW-108, Textile World, 330 W. 42nd St., New York 18, N. Y.

SALESMAN AVAILABLE

EXPERIENCED SALESMAN: Sixteen years experience sales and service work to textile industry. Thoroughly familar all phases textile manufacturing, finishing and sanforizing. Wide acquaintance southern executives and plant men. At present employed, but will consider change with worthwhile future. 35 years old, draft exempt. SA-109, Textile World, 520 N. Michigan Ave., Chicago 11, Ill.

BUSINESS OPPORTUNITIES

TEXTILE CONVERTER with established business, large following, desires partnership arrangement with greige goods manufacturer. Replies strictly confidential. BO-110, Textile World, 330 W. 42nd St., New York 18, N. Y.

LARGE DISTRIBUTOR of printed tricot jersey desires partnership arrangement with knitting mill manufacturing 40" or 54" tricot cloth. BO-111, Textile World, 330 W. 42nd St., New York 18, N. Y.

BOSS DYER and superintendent of dyeing and finishing, 45 years old, draft exempt can go anywhere if things are right, also have had twenty some years experience dyeing cotton, rayon, acetate crepe price goods boxes and jigges, all kinds of women's diers goods and men's tie goods, also high class lineing for men's smoking robes also would be glad to go in as a partnership. RO-106, Textile World, 330 W. 42nd St., New York 18, N. Y.

ATTENTION THREAD MILLS

Two men in the thread field. Twelve years — large following — are looking for reliable mill agency in New York—New Jersey territory. For immediate or post-war business. Best references.

RA-100, Textile World
330 West 42nd St., New York 18, N. Y.

PROFESSIONAL SERVICES

LANCASTER, ALLWINE & ROMMEL

Interesting booklet concerning Inventions, Patents, Trade-Marks and Copyrights, together with Schedule of Government and Attorney's Fees, sent without obligation. Simply ask for "booklet and schedule."

Established 1915
Patents & Trade-Marks
Suite 448, 815—15th St., N.W., Washington 5, D. C.

J. L. TUCKER
Consulting Service
for
MANUFACTURERS AND USERS OF FIBERS AND TEXTILE PRODUCTS ON FIBERS PRODUCTS PROCESSES ENGINEERING
Box 37, North Scituate, Rhode Island — P. O. Box 494, Newark, Ohio

ATTENTION

SALES MANAGERS

Established New England Sales Engineer desires additional account, preferably electrical apparatus. Write

RA-992, Textile World
330 West 42nd St., New York 18, N. Y.

EXPORT TO SWEDEN

Well-known Swedish Import and Agency Firm wants to represent manufacturer of shirts and stockings. Offers to

ERNST ALSBERG AB
Sveavagen 76, Stockholm, Sweden

WANTED TO CONTACT
Mill Interested to Manufacture

RAYON GUIMPE

Will Supply Yarn if Necessary
LARGE QUANTITIES NEEDED
Samples On Request

I. B. SILK CO.

315 West 36th St., New York 18

PILE FABRICS

Mill wanted to manufacture
Will supply yarn

BO-984, Textile World
330 West 42nd St., New York 18, N. Y.

FOR SALE

ONE GOOD MILL BUILDING IN PIEDMONT SECTION of South Carolina. Large enough for 400 looms and necessary carding and spinning equipment. Has power plant to develop minimum of 600 H. P. Plenty warehouse space. 80 houses to go with mill if desired. 450 acre land.

BO-998, Textile World
330 W. 42nd St., New York 18, N. Y.

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Buy — and Sell — through an Experienced Dealer offering a COMPLETE Service

A Partial List of Equipment Ready for Immediate Shipment

3—46" x 52" Button Breakers
3—42" Butterworth 3-Roll Friction and Rolling Calender, 1—motor driven, 2–belt dr.
1—3 Cyl S & F Card Set 48" with feeds.
1—60" D. & F. 2-cyl. Iron Shoddy Card
1—54" American Coating Machine
2—100 Spindle Foster Model 25 Doublers
1—36" Doubling & Winding Machine
1—60" Windle Doubling Machine, Motor Dr.
1—68" P.&W. Doubling Machine, Mtr. Dr.
1—46" Windle Doubler
1—60" Windle Doubler, Winder and Measurer
1—6 Delv. Whitin Drawing Frame with 12" coiler
1—4 and one 6 delv. H & B dr. frame
1—40" Power Duster
1—28" Stick Klauder Weldon Skein Dyeing Machine
1—Franklin Package Dyeing Unit, incl. three 100-lb. and one 300 lb. machine, extractor and winders
1—Laboratory Hydro Extractor
1—28" American Laundry belt driven extractor
1—40" American Tool underdriven Copper basket belt driven extractor
1—98 Spindle Abbott Auto. Winder
1—28" Amer. Ldry. Copper Basket Extractor
1—40" Weston Bronze Basket Extractor
1—42" Fletcher Copper Basket Extractor
2—Hunter No. 10 Fulling Mills
9—40" C&M 42", 46", 100" Folding Machines
1—52" James Smith Card Grinder
8—1200 h. Halton Jacquards, 9" lift
60—42" Modified "E" Draper with roller tops, 47½" reed space, belt driven
8—17 ft. Fletcher Victory Web Looms, 12 space, 1942, with numerous parts and supplies

NOVEMBER-DECEMBER

SPECIALS

1—Complete Set Combers including:

1—Whitin Ribbon Lapper

1—Whitin Silver Lapper

8—Whitin Model "C" Combers

1—72" P.&W. Semi-Decating Machine, complete with Nash Pump and Motor, cylinder 12" dia. by 72" face.

1—90" D.&F. Single Acting 14 Roll Napper

2—92" D & F Warpers with Beamers

2—82" D.&F. Warpers with Beamers, etc.

30—76" Reed Space 2 x 1 Draper modified D Auto. Looms, 20 harness; motor driven
13—82" Reed Space 2 x 1 Draper modified D Auto. Looms, 20 harness, motor driven
43—82" Stafford 1 x 1 automatic Looms, 20 harness, motor driven
18—82" C & K 4 x 4 25 Harness motor driven woolen looms
1—½ HP G.E. Induction Motor
1—90" P.&W. 20-r. D. A. Napper
1—40" Furbush Mixing Picker
2—40" H & B Single Process Pickers
1—28" Mixing Picker
1—Wm. Schofield Rag Picker
1—30" D & F Mixing Picker
1—24" Parkhurst Burr Picker
2—C&M Fearnaught Pickers, 40" and 48"
1—66" Voelker Cloth Press
1—66" Gessner XX Cent. Cloth Press
2—50" Dinsmore Inspecting, Sewing & Rolling Machines, Mtr. Dr.
1—60" C & M Plush Shear
3—66" C & M 2-Blade Shears
3—66" P & W 2-Blade Shears
1—66½" P & W Model A 2-Blade Shear
1—72" Montsford 2-Blade Shear
1—Schultze 106" Double Shear
1—Smith & Furbush Rag Shredder
1—42" C. & M. 5 Burner Gas Singer
3—204 Sp. Lowell 2¼" Ring Band dr. Spinners
6—24 Spindle Fairmont Drum Spoolers for 4½ x 6" spools
10,000—4½ x 6" Wooden Spools
6—120 Spindle Draper Spoolers
2—Warp Compressor Machine Co., Multiple Jack Spoolers
1—60" C & M Tiger
4—20 Spindle Universal #90 Filling Bobbin Winders, bottom supply
7—100 Spindle Foster #12 tube winders, belt driven
1—200-spindle Draper 2¼" Ring Tape Drive Twister
1—Barber Coleman Auto. Warp Tying Mach., size 4-E
2—60" Edge Stenciling & Winding Machines
1—30' H. W. Butterworth Pin Tenter, 120" opening, Mtr. Dr.

MACHINERY LIQUIDATING COMPANY

OPA REGISTRATION NUMBER 789

EST. 1923

31-33 West 42nd Street NEW YORK 18, N. Y.

DOMESTIC TELEPHONE PEnnsylvania 6-8014 EXPORT

DEALERS IN TEXTILE MACHINERY, ACCESSORIES AND MILL SUPPLIES

100 – Crompton & Knowles 600 hooks double lift, Jacquard machines all complete with levers, connecting rods, bottom cranks, glass rods, glass rods frame in excellent condition, at a very attractive price

50 Crompton & Knowles 4 x 1 automatic looms with multipliers, to make 44" rayon and cotton goods, individually motor driven, complete with pick counters and warp stop motions.

12 Crompton & Knowles 4 x 4, 92" reed space, woolen looms, individually motor driven, late type loom, 25 harness heads in good shape.

8 Crompton & Knowles 4 x 1 automatic looms, individually motor driven 75" reed space, complete with warp stop motion, and pick counters.

10 Knowles 4 x 1 looms, automatic, individually motor driven, 82" reed space, complete with warp stop motion and pick counters.

Looms
Warpers
Winders
Coppers

Jacquard machines
Spinning and throwing machines
Finishing machines

Dyeing machines
Textile motors
Shuttles—Quillers
Harnesses

CONTACT US FOR QUICK ACTION ON TEXTILE EQUIPMENT

PATERSON
SILK MACHINERY EXCHANGE

24 SPRUCE STREET *SHERWOOD 2-1363-4 5* **PATERSON, N. J.**

WE OWN AND OFFER

FOR SALE

WOOLEN CARDS

3—D & F 4 Cyl. 60" w. x 54" dia. all Iron Woolen Cards. Each set complete with Bramwell feed. D & F No. 25 Garnet Breast. 9" dia. workers. 12" Fancies. 36" doffers. Apperly feed. 16" dia. Ring doffers. 2-bank double apron rubb condensers. 4-spool winding frame.

3—D & F 3 Cyl. 60" w. x 54" dia. all Iron Woolen Cards to same specifications as above.

NOTE: We have parts on hand to make the 3 cyl. sets into 4 cyls. if wanted.

CONDITION—Excellent mechanical condition.
GUARANTEE—Guaranteed complete mechanically.
INSPECTION—By appointment only.
LOCATION: Near Lowell. We will drive you from our office.
TELEPHONE INQUIRIES: Lowell 6391—Ask for B. A. or R. W. McKittrick.

WRITE — WIRE — PHONE

FRANK G. W. McKITTRICK CO.

60 FLETCHER STREET **LOWELLL, MASS.**

Visit our 3 warehouses in Lowell

GAINES TEXTILE MACHINERY CO.

Dealers In Rebuilt and Guaranteed Yarn Winding and Spinning Machinery

141-45 West 17th Street **New York 11, N. Y.**

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BUTTERWORTH CALENDAR

7 ROLLS—80" FACE

3 Composition Rolls, 4 Steel Rolls, Hydraulic lift —water-cooled journals. Located in South

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Scott & Williams — Banner — Wildman — Reading — Kalio — etc., etc.

All types of hosiery mill equipment on hand

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508-14 West Fifth St. **Charlotte, N. C.**

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17—355, 528, 730 & 1100 ft. Cap.

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25,000, 50,000, 70,00 & 100,000 Gal. Cap. —Towers 25 to 156 ft. high.

R. C. STANHOPE, INC.
60 East 42nd St. **New York, N. Y.**

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KNITTERS - RIBBERS - LOOPERS
CYLINDERS - DIALS - TRANSFERS
RIBBER CYLINDERS & DIALS
UNION SPECIAL SEAMERS

C. M. FRENCH

Commercial Trust Bldg., Philadelphia 2, Pa.

TEXTILE MACHINERY

ENGINEERS & EXPORTERS

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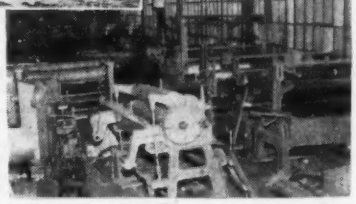
S. B. SCHWARTZ COMPANY

7301 PLUM ST. **NEW ORLEANS, U.S.A.**

BACK THE 6TH WAR LOAN—BUY AND HOLD MORE WAR BONDS

What "CONSOLIDATED" Brings *to the Service of the Textile Industry*

Exterior view, Paterson Warehouse



One of the 3 floors full of Equipment in Paterson Warehouse.

"CONSOLIDATED" gives you the benefit of more than a quarter-century of EXPERIENCE in the rapid disposal of idle machines and plants—and in quickly supplying needed equipment to industry. Now as never before, this Service is vital, due to changes in War production, replacement of worn machines, and the necessity of creating jobs.

Our Paterson Warehouse has several floors filled with equipment—and we also have single machines to complete plants in every section of the country.

DYE BECKS

12—Morrison & V.V. 6' to 9' Dye Becks, stainless steel and wood tubs.

DYE JIGS

4—Dye Jiggs, 54" rubber covered rolls.
1—Battery 4—Morrison S.S. 50", tilt. Expanders.

SCOURING & DYEING

2—Haveg Washers, completely enclosed.
1—Sargent 3-Bowl Skein Scouring machine.
6—Klauder-Weldon Skein Dyeing Machines.
1—Rodney 7-string Dyeing Machine.
1—Obermaier Combination Package & Rawstock Mch.
1—Buhlmann 100 roller cap. 14-color skein dyer.
1—Franklin 500# Package Dyer.
1—1000# Raw Stock Dyeing machine.
1—Obermaier Dyeing Machine.

EXTRACTORS

6—V.V. & Tolhurst 54" & 60"; rubber & copper baskets.
8—V.V. Fletcher & Tolhurst 40-48", copper lined.
10—Tolhurst, American Laundry, Bock, & Troy 14"42", copper baskets.

WASHERS

1—Continuous 60" Boil-Off Machine, steel tanks.
1—Van Vlaanderen 60" Open Washer.
2—Open Washers, 5 & 8 compartments, 50" face.
6—Compartment 30' Washer, 66" wide.
2—Hunter 6 string washers.

CALENDARS

2—V.V. Ball Bearing Calendars, 50" & 60".
6—V.V. Butterworth & Textile 3, 6 & 7-Roll Hydraulic Calendars, 80".
3—Butterworth & Perkins 40", 54" & 80" 3-Bowl Schreiners.
1—Butterworth 3-Roll 54" Friction Calendar.
2—54" Embossers.

SHEARS

3—P & W 2-Blade Shears, 60" & 66½", complete with lint saving device and brushes.

DECATERS

3—P & W & Gessner Full Decaters, 72", complete.

DRYERS

3—National & P & S Loop Dryers, 30-65' long.
1—P & S 72" Raw Stock Dryer, automatic feed.
1—Phila. Raw Stock Dryer, 48", automatic feeder.
3—Sargent & Hunter Wool Carbonizers.
4—Truck Dryers, 1 & 2 trucks.
1—Multipass Airlay Dryer.
5—Proctor & Schwartz Yarn Dryers.
1—Pin Tenter Dryer, 64" wide.
1—V.V. 8-Tier Net Dryer.

NAPPERS

2—D & F single acting Nappers, 60 & 84".
3—Gessner & Woonsocket double acting Nappers, 60", 84" & 90".

TENTER FRAMES

1—Textile Fin. Mach. 90' x 50" Tenter.
1—W & J 80' x 50" Swing Tenter.
1—Heathcote Pin Tenter.
1—25' Tenter with Bakelite clips.

PALMER QUETCHES & TENTERS

2—V.V. Palmers, 60" & 72".
3—Morrison & V.V. 50", 60" & 72" Palmer Quetches.
1—Butterworth 84" Palmer Quetch with Tenter.
2—V.V. & General Machine 60" Palmerettes.

PADDERS, MANGLES, QUETCHES

5—Textile & Butterworth 2-Roll Padders, 50", 62" & 80".
4—Butterworth 50" 2-Roll Starch Mangles.
1—James Hunter 50" Water Manger.
3—Butterworth & Morrison 2 & 3-roll Quetches, 50-72".

BUTTON BREAKERS

5—Morrison & V.V. Button Breakers, 50-72", brass rolls.

BEAMERS—BATCHERS

4—Van Vlaanderen 50" & 60" Beamers.
3—Batchers, 48", 50" & 72".

Special

15 sets D & F 2-cylinder Worsted Cards 48 x 48 all-iron cylinders. Can be inspected. Subject Prior Sale.

SPECIAL OFFERINGS

1—Complete Jute Woven Bagging Plant.

1—Butterworth 30' Cast Iron Ager, 50".

1—P & W 72" Decater, complete.

FLAT FOLDERS & DOUBLERS

4—E & Hall Flat Folders, 42"-60", with motors.
3—P & W & Windle 46"-60" Doubling, Reeling & Measuring.

TUBERS

10—Tubing & Measuring Machines, 50" & 60", with motors.

SEWING MACHINES

5—Morrow 60ABB & 60D3B on stands and tracks.
3—Union Special and Singers.

PRESSES

1—Logemann All Steel Paper Baler.
3—Gessner 66" & 72" Wool Presses.

SLASHERS

8—Saco-Lowell & Johnson Rayon & Cotton Slashers.

DRY CANS

416—Dry Cans, 50" to 112" face, 23" to 84" dia.

PRINTING MACHINES

7—R. B. & F 1-10 color Print Machines, 40-60".
1—Waldron 4-Color Wallpaper Print Machine.
1—V.V. 10-color Ribbon Print Machine.

PRINT MACHINE EQUIPMENT

3—BTA Motors, 25, 35 & 50 horsepower.
Star gears, mandrels, copper pans & doctor blades.

ENGRAVING MACHINERY

10—Pantograph Machines, 52"-60" face.
3—Turning Lathes, 60-64" face.
4—Polishing Lathes, 60-72" lg.
1—Etching Trough, 54".

AGERS

4—Butterworth Cast Iron Agers, 12', 18' & 30' long x 50-60" wide.

KETTLES

16—Textile Copper Steam Jacketed Color Kettles, tilting, agitated, 240-150 gallons.

CARDING MACHINES

6—Sets D & F Worsted Cards, 60" x 54".
2—Sets D & F Worsted Cards, 60" x 48".
2—Sets S & F Worsted Cards, 54" x 54".
2—Furbush Worsted Cards, 48" x 48".
19—Sets D & F Woolen Cards, 48" x 48".
1—Sample Card, 48" dia.
15—D & F Breaker & Finisher Cards, 48" x 50".
8—Sargent, Bramwell & Harwood Feeds, 26-72".

SPINNING MACHINES

2—Large Package Mules, 240 spindles.
155—Whitin & D & F Spinning Frames, 240 spindles, 252, 2" & 3" gauge, band driven.
100—Deliveries H & B Drawing Frames, 12" coilers.
12—Universal #50 & #90 Winders.
133—Fletcher double deck Twisters.
5—Fearnaught & S-L Pickers, 30-60".

WEAVING MACHINES

20—C & K 82" Woolen Looms, motor driven.
4—C & K 4 x 80" Rayon Looms.
100—C & K 50" Rayon Looms.
94—Draper Model E 44" Automatic Looms.

WATER SOFTENERS

1—Permutit Water Softener, 103" hg. 63" wd.
2—10 x 10 Vertical Softeners, Zeolite.
3—Pressure Sand Filters, 8' dia. x 20' long, complete.

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Skein Reelers, gas boilers, blowers, scutchers, expanders, trucks, generator sets, motors, tanks, modine heaters, exhaust fans, pleaters, gears, portable agitators, humidifiers, boilers, pumps, testers, etc.

• We Buy and Sell from Single Items to Complete Plants

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Send us your listings of idle equipment.

THE KEY TO SAVING TIME AND MONEY

FOR OVER A QUARTER CENTURY A SYMBOL OF CONFIDENCE

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TEXTILE DIVISION, PATERSON, N. J.

5th Ave. & McLean Blvd. • Tel. ARmory 4-6540

15 Park Row, New York 7, N. Y. Tel. BArclay 7-0600

SEARCHLIGHT SECTION

BUTTON BREAKER, Morrison 50"
CALENDER, 3 roll, Cavagnaro, 52" wide
CALENDER, 3 roll, King & Gerber, 60"
CALENDER, 3 roll, Finishing, 45"
DRY CANS, set of 37, copper 112" syphon type, mangle
DRY CANS, set of 12, copper 28" dia.x50" face, vertical arrangement
DRYERS, Net Conveyor, 50" & 60" wide
DRYERS, LOOP, Proctor & Schwartz
DRYER NATIONAL LOOP 82", Rev. Sticks Air Fin. 3 side Fans & Booster Fan
DYE TUBS, Copper, Skein, various lengths
BEAM EXTRACTORS, 50" Van Vlaanderen
EXTRACTOR, 60" Van Vlaanderen, rubber basket, with loading device
EXTRACTOR, 48" Hercules, tinned copper basket, Open top
2—EXTRACTORS, 48" Amico Hydro, copper basket, Open top
FLOCK STENCIL MACHINE, with patterns
2—FLAT FOLDERS, Elliott & Hall
GE SYNCHRONOUS MOTOR GENERATOR, AC 2300 volts to 125 KW DC
INFRA RED units complete with blowers
KETTLE copper tilting 65 gal. cap. 30"x26"
PALMER QUETCH UNITS, Butwrth 54" & VV 60"
PALMER PIN TENTER, Mangle unit 84"
PALMERETTE 60" face, General Machine
1—#3 NASH PUMP, Bronze casing
3—REEVES DRIVES, 000 Hor. totally enclosed
RIBBON FINISHING UNIT, complete, quetch cans, calender, motor
RIBBON PRINTING MACHINE, comp. 10 color
TANK, rubber lined & covered
TENTER FRAMES, W&J, 60'x44" & 30'x50"
TUBER, for 50" to 60" goods
WASHER, VV, 3 compartment
WATER SOFTENER & FILTERS

"We are prepared to help you in disposing of or acquiring both complete plants and individual machines. Your inquiries cordially invited."

CADGENE MACHINERY CO.
5th Ave. & McLean Blvd.
P. O. Box 1206 Paterson 4, N. J.
Sherwood 2-3500

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IMPORTER, DEALER AND MANUFACTURER
TEXTILE MACHINERY AND APPLIANCES
New and Used
River Works, Andover, Mass.

TEXTILE AUXILIARIES
FROM OUR OWN STOCK "HARD TO FIND MACHINERY":

1—U. S. Colloid Mill #12 with 3 Motors 550 V.
7—7' Copper Cans 56" wide
7—5' Copper Cans 56" wide
1—130" Warp Splitter
2—Ping-Pong Machines
1—Wool Top Back Washer
3—36" Hydro Extractors—1 Basket Copper—2 Baskets Iron
1—54" Simpson Winders
1—40' Straight Tenter 102" wide
2—45" B.B. Scutchers
1—66"—5 Bowl Watermangle
2—50"—6 Bowl Calenders—Roller Bearings
1—36" Hydr. 3 Roll Calender for Narrow Fabrics
2—9' Slack Washers
1—Lift-Truck with Platforms
1—4 Can-Drier 5' Diam. 58" wide Copper
1—90' Tenter-Insulated Housing, ST. ST. Clips
6—90' Tenter Chains W & J
Hydro Extractors—24" 26" 23"
1—44" Perkins—Shreiner Cal.

TEL. DEXTER 9650 **1128 N. MAIN ST.**
PROVIDENCE, R. I.

JOHN J. McCLOSKEY, Inc.
MANUFACTURERS AND DEALERS
TEXTILE MACHINERY OF ALL TYPES
APPRAISALS WOOLEN—WORSTED—COTTON LIQUIDATIONS
NEW AND USED
Philadelphia Office: 140-142 So. Front Street, Factory Warehouse: Collingswood, N. J.

FOR SALE
BTS

12—Draper Mod. D. auto. bobbin change looms, 69½" R. S. 20 harness, arr. for motor drive
12—Stafford 40" shuttle change looms, motor drive 220 V.
1—Arlington 45" Scutcher
2—D-2 Combers 9¾" lap. with asperators
1—Ingersoll-Rand 14x8 single stage Compressor, with idler
13—#50 Cone Winders, tensions, waxing att., clutch drive
Picker Aprons—Mossberg Selvage Spools

Bobbins • Spools • Supplies • Pulleys, etc.
Direct Factory Agents Walter L. Parker Bobbin & Spool Co.
BAY STATE TEXTILE CO.
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140 spindles per machine—Type DR double drive, Sipp Steel Pipe frame, rigid traverse—Double oilless bearing swift bracket, 1⅞ inch pin wooden hub rigid wire swift—Traverse adjustable from 4-11/16" to 6"—Spool size 5-¼" between heads—4-¾" heads—2-¾" diameter barrel—Equipped with ½ HP 550 V 60 Cycle 3 phase General Electric ball bearing motors, Double V belt drive
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516—Pitch-worsted—38" to 68"—Dents 12 to 60—3¾" in depth.
1021—Pitch—68½"—Dents 7½ to 21½—3¾ in. depth.
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EXTRA-CYLINDERS
(Both Spring & Latch Needles)
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1—Ireland SLITTING MACHINE
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132 Spindles
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EXCELLENT TEXTILE EQUIPMENT READY FOR IMMEDIATE SHIPMENT

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100—Draper Model K 45" Looms, Belt Driven, 8" Bobbin.
118—4 x 1 C & K Automatic Looms, 48½"
20—4 x 1 C & K Hand Threading Looms, 43½"
190—1 Box Automatic Hopedale Plain Looms.
600—Draper Automatic Looms with Slashing Auxiliary equipment.
200—C & K 2 x 1 Looms.

200—600 hook C & K Double lift Jacquard heads.
32—C & K #1304 Fine Index Double lift single cylinder heads.

DYE PADDER

1—Butterworth 2 Roll Dye Padder, Brass and Rubber Roll, Motor Driven.

EXTRACTORS

1—American 48" Open Top, Motor Driven Extractor, Copper Basket.
2—Van Vlaanderen 60" Motor Driven Extractors.
2—60" Steam Driven Centrifugal Extractors, Perforated Copper Baskets, Quick Opening Cover, 600 R.P.M.

TENTER FRAMES

1—30" Pin Tenter Frame with Motor and Reduction Box.
1—60' Windsor & Jerauld Tenter Frame with Proctor & Schwartz Housing.
1—Textile 40' Pin Tenter Frame, Link Belt Drive, #3 Reeves General Electric 5 HP, 60 Cycle, 3 Phase Motor, 60" wide, General Electric Guiders, Steam Heating Coils.
1—Windsor & Jerauld 70' long, 60" wide Tenter Frame, Brass Side Opening Clips.

BRUSHING MACHINE

1—Curtis and Marble 58" type 2-1 Brushing Machine equipped with 2 soft brushes 9" dia. and 1-2 h.p. Motor.

CAN DRYERS

1—Set of 18 Cans, 23" x 54" Face, Vertical Stack.
1—Textile Can Drying and Rolling-up machine, Copper Can 36" diameter, 50" Face.
1—Textile Finishing Machinery Company set of 8 Copper Cans—2 Stacks, 4 Cans to a Stack, Vertical Stacks, 50" wide.

LOOP DRYER

1—Proctor & Schwartz Loop Dryer, 50" wide, 20' long, 3 Overhead Fans, Steam Heating Coils.

COTTAGE STEAMER

1—Robert Metcalf Cottage Steamer, 10' long x 8' wide.

DYE BECKS

1—Van Vlaanderen 4' Stainless Steel Lined Dye Beck.

SPECIAL ENGRAVING EQUIPMENT

7—John Hope 50" Pantograph machines, Double Bar, #1381-1387.
10—John Hope 48" Pantograph machines, Double Bar, #1388-1397.
1—John Hope 45" Pantograph machine, Double Bar, #1398.

SPECIAL COTTON SPINNING EQUIPMENT

2—Complete Murray Cotton Gins.

1—Kitson Bale Breaker, consisting of:

1—Automatic Feeder, 37½"

1—2 Beater Breaker Picker, Ball Bearing Beaters, 1—16" Porcupine Beater, 1—16" 2 Blade Beater, Motor Driven by 2—5 HP 440 Volt Motors.

3—Kitson 40" Intermediate Pickers with 2 Blade Ball Bearing Beaters, 16", and 12' Apron, Motor Driven.

3—Kitson Finisher Pickers, 2—16", 2 Blade Beaters, Ball Bearing, 12' Apron, Motor Driven.

39—Saco and Pettee 40" Revolving Flat Cards, 27" Doffers, 12" Coilers, 5 Point Settings, Spindle Back.

108—Deliveries, Saco and Pettee Drawing 1⅜" Metallic Rolls, 12" Coilers.

10—Saco and Pettee 11½ x 5½ Slubbers.
(1) 40 Spindles
(4) 52 Spindles
(5) 60 Spindles

2—Providence Slubbers, 11 x 5½, 60 Spindles, 1¼" Front Rolls, Serial No. 8400 Range.

11—Saco and Pettee Intermediates, 9 x 4½, 92 Spindles, 1¼" Rolls.

26—Sacco and Pettee 7 x 3½ Speeders, 152 Spindles.

105—Fales & Jenks Spinning Frames, 240 Spindles, 2¾" Gauge, 1⅝" Rings, Whitin, Medium Spindles, Band Driven, 7' Cylinder, Wood Thread Boards, Motor Driven by 5 HP A.C. 440 Volt Motors, V-Belt Drive.

45—Fales & Jenks 220 Spindle Twisters, 3" Gauge, 2" Rings, Wood Thread Boards, 8 Slat Wood Creel, 7½ H.P. Motor Drive, 440 Volt, Clover Leaf Heads.

15—Easton Burnham and Draper Spoolers.

15—Universal #50 Winders.

KNITTING MACHINES

Wildman, Scott & Williams, Brinton, Supreme.

SEWING MACHINES

Singer, Union Special, Merrow, Metropolitan and Willcox & Gibbs Flatlocks.

FINISHING CALENDERS

1—Butterworth 42" Hydraulic Schreiner 2 Bowl Calender, equipped with Cotton and Steel Engraved Rolls, Gas Heated Friction Unrolling and Batcher, Tension Rolls, complete with Accumulator and Pump, direct connected to General Electric 3 H.P. A.C. Motor, 50 Volts, 60 Cycle, 3 Phase, 900 RPM, Type M.T., with Drum Controller, Magnetic Switch and Grids.
1—Van Vlaanderen 3-Roll Finishing Calender, Wool Felt Bowls, Large Diameter.

FOLDERS

1—Eastwood Gray Goods Folder, 60" wide.
3—E & H Flat Folders, 45" to 60" wide.

KETTLES

7—Copper Steam Jacketed Mixing Kettles, equipped with Double Motion Bronze Agitators, 70 to 350 Gallons capacity.

DECATORS

1—Parks & Woolson 72" Semi-Decator, with Blanket, Nash Vacuum Pump and Motor.

DOUBLERS

2—Parks & Woolson 54" Doubling and Reeling machines.
1—Van Vlaanderen 60" Doubling and Winding machine.

PRINTING

1—Set of Textile Finishing Machinery 8 Copper Cans, 2 Stacks, 4 to a stack, Vertical Stacks, 50" wide.

PRINT MACHINE MOTORS

5—Print Machine Motors, 23 to 35 H.P.

SPECIAL

5—Textile Dye Jiggs, 54" Wooden Tub, 2 Rubber-covered Ball Bearing Top Rolls, 4 Stainless Steel Immersion Rolls, Bevel Gear Drive with one DeLaval Worm Reduction Gear Unit, direct connected to Lincoln 10 H.P. A.C. Motor, 550 Volts, 60 Cycle, 3 Phase, 1200 RPM with Control.
1—Battery of 4 Morrison Stainless Steel Dye Jiggs, 50", A.C. Motor.
500—Butterworth Tenter Chain Clips, Type O-O Opening, Brass Faced Clips.

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25,000—3½x4 Fiber Head Spools
50,000—Draper Band Drive Clutch Spindles Complete
1—Davis & Furber Mule Spinning Frame, 360 spindles
2—81" Double Roll Size Boxes
1—100 Spindle, 1937 Model, Foster #103 Winder for Wooden Cones
5—120 Spindle Barber Coleman Spoolers, 4½" gauge Model K.K.
500—Pair Adjustable Loom Beam Heads
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LATE TYPE, 5" spacing; Equipped with—
100 Double 2" feed rolls each machine
100 Large whorl swing spindles
100 - 3⅝" Eadie rings—like new
100 Separators
2 Speed ball bearing motors—3 phase, 60 cycle, 550 volts, 1½ h. p.-2½ h. p.
Above 5B's in excellent condition

19—Large Package Atwood 5B's:
5" spacing; Equipped with—
100 Single 2" feed rolls
100 Large whorl swing spindles
100 - 3⅜" Eadie rings—like new
1½ h. p. ball bearing motor—3 phase, 60 cycle, 550 volts
Above 5B's in excellent condition.

9000—Almost New Bakelite 5B Spools,
for above machines, 4 7-16 throw - 3" head - ferrule in top head - brass bushing in bottom head

13—Fletcher-Scranton 5B's 5¼" spacing
100 Double 2" feed rolls each machine
100 Swing spindles
100 2¾" Eadie rings
2 h. p., 2 phase, 60 cycle, 220 volt motor
Good condition.

10—Atwood 5B's: 5¼" spacing
100 Single 2" feed rolls each machine
100 Swing spindles - large whorl
100 2⅞" Eadie rings or 3" Whitin rings
Good condition.

2—U. S. Spinners:
Single deck, 100 spindles each, 3¼" cork rolls to accommodate 3½" traverse spool; 3 h. p., 3 phase, 60 cycle 220/440 volt motor.
3800—3½" traverse - 3¼" iron heads or 1400 bakelite 3½" traverse - 3" head spools for above machines.
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36 rolls—18 right—18 left, with grinder.

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656—STAINLESS STEEL AND ALUMINUM DRY POLES

	Length	Outside Diam.
285—Stainless steel tubes	4' 9"	1"
200—Aluminum tubes	8'	1"
31—Aluminum tubes	62"	11.56"
50—Aluminum tubes	68-5⅜"	¾"
90—Aluminum tubes	70"	1⅛"

150—6" #50 UNIVERSAL CAMS
200—5" #50 UNIVERSAL CAMS

2 No. 50 Universal L Drive 6" Tubers
100—STAINLESS STEEL EMULSION ROLLERS, each 2 sections, ribbed type
8—NEW CAST ALUMINUM EMULSION TROUGHS

Spools—
60,000—All tin—3¾" traverse, 3"
25,000—Fibre head spools, 3½" traverse, 2¾" head.
5,000—Eastman, 3½" traverse, 3" head.
20,000—Large package composition type, 3¾" traverse, 3½" head.

Iron Heads—
10,000—2⅛" traverse, 3¾" head.
3,800—Iron heads, 3½" traverse, 3⅛" head.
175,000—Fibre head, 3⅜" traverse, 2½" head.
10,000—Wood spools, 6" traverse, 4" heads, metal bound.

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1—GILL 2 Spindle.
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400—Draper E Looms 30".
30—Draper E Looms 40".
47—C&K 4x1 Automatic 45" motor driven.
28—C&K 4x1 Automatic 82" motor driven.
24—C&K 4x1 Automatic 79½" motor driven.
32—C&K 4x4 Box 92".
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32—SPINNING FRAMES 2¾" Gauge, Band Driven.
40—SPINNING FRAMES 3¼" Gauge, Tape Driven.
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LABOR GIVES INDUSTRY

MORE PER DOLLAR OF WAGES

IN NEW YORK STATE

In Each of the Ten Leading Industries New York Is Either First or Second in the *Value Added Per Dollar of Wages Paid.*

● As a businessman you know that when you buy anything you consider not only what you pay—*but what you get.*

Impartial statistics show that labor in New York State gives industry more for its money.

There's a reason for this. 12½% of the skilled workers of the nation are in New York State. Here is a vast pool of diversified skills.

Good schools, good transportation, excellent living conditions and a wide and steady market for highly skilled craftsmen have brought these workers together in New York State.

Labor is Mature

What is more, in New York State labor is mature and stable. It has *learned the value of cooperating with management.* In a recent poll of New York State manufacturers, 92% attested their approval of this spirit of cooperation. Percentage of man hours lost due to strikes has been infinitesimally small.

How We Can Help

It is part of the function of the New York State Department of Commerce to help industry locate the man power it requires. If you are searching for a particular kind of skill, we should welcome hearing from you.

Furthermore, we can assist you on plant locations; get you a preview of taxes for a new enterprise; give technical service on new materials and new products; and help promote opportunities in foreign trade.

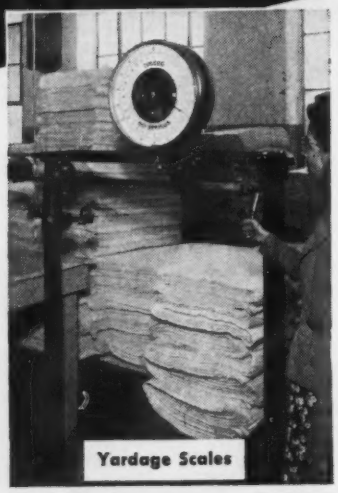
Accept This Informative Book

The services we can render are fully described in our new book "New York Means Business." In it business men tell in their own words their experience with labor, transportation, markets and other factors of doing business in New York. Send for your copy on your business letterhead.

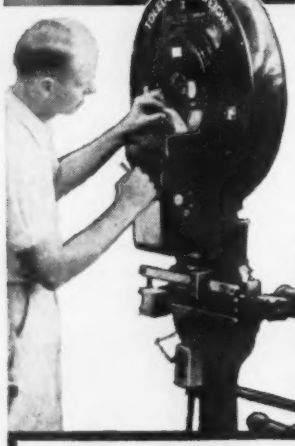
ADDRESS: M. P. CATHERWOOD
COMMISSIONER
NEW YORK STATE DEPARTMENT OF COMMERCE,
ALBANY 1, NEW YORK

NEW YORK MEANS BUSINESS

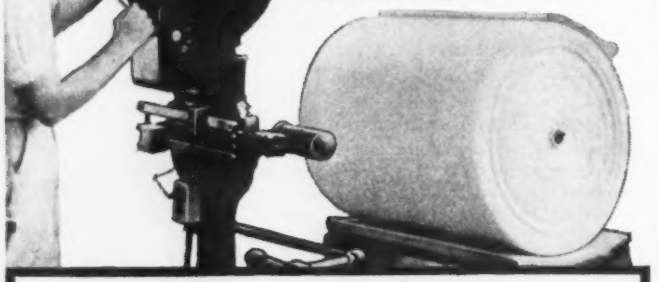
Accuracy AT EVERY WEIGHING POINT



● Keep production UP and costs down—with Toledos for every textile weighing job! Tops in *accuracy, speed* and *dependability*...Toledos are "tailored" to your exact needs. Ruggedly built...expertly designed through long research in textile weighing problems. Send now for illustrated "Toledo Textile Book." Toledo Scale Company, Toledo, Ohio.



● *Accurate* PRINTED *weights* eliminate costly human errors in reading and recording weight figures! Toledo Printweigh meets Textile production needs with unerring *printed* records and greatest speed! Prints BIG figures FAST... on thick tickets... sheets... or strips ...with extra copies.



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When Soldiers Were Paid in Salt!

AT ONE TIME Roman Legionnaires received their pay in salt which they bartered for their living necessities. As a result, the Latin word "salarium," meaning salt, has come down to us in the present word "salary."

Such a medium of exchange must have indeed made business transactions both slow and cumbersome. But how different and simple it is today, in the textile industry, for example, to transact business through your factor. He promptly gives his check for your accounts receivable, assumes credit risks, extends loans on inventories—acts as financier, business advisor and friend.

As the War draws into its final phase and emphasis on speedy RECONVERSION is more pronounced . . . your Postwar Plans should be nearer fulfillment.

If financial problems stand in your way—if adjustments which would involve an immediate outlay of money are going to delay the early start which will be so important in winning peacetime markets—then, may we suggest that you get in touch with us.

A discussion of your problems with us, either in your office, or at ours, may prove to be invaluable in helping you to that quick postwar get-a-way your business must have. There is, of course, no obligation.

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354 FOURTH AVENUE
NEW YORK 10, N. Y.

SERVICE IS WHAT WORRIES ME MOST. THAT'S WHY I BUY SOAP FROM A BIG COMPANY WITH FACILITIES TO GIVE GOOD SERVICE.
QUALITY IS MY RESPONSIBILITY. I WANT TO KNOW THAT THE SOAP I USE IS MADE BY A SPECIALIST IN TEXTILE SOAP.

Big Company Service . . . *Specialist Quality* . . . *that's* **BEACH**

It's wise to remember *this*, when buying soap . . . Beach grew big while specializing on the types of soap the textile industry uses.

Today, Beach offers you 116 years of experience in serving mills like yours . . . plus the facilities to give you the best service that present conditions allow.

You are our big customer. We're concentrating on giving *you* the quality you expect and the service you deserve.

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